The Raymond Rustler.

VOL. 9 RAYMOND, ALBERTA, FRIDAY, MAY 12 1911 No. 18

Local and General News Items

Dance tonight.

Mr. Geo. H. Budd was at Sweet Grass last week, and returned on Monday.

Mr. David Galbraith left last week for Idaho, where he will remain for the next ten or twelve days.

Last week's wind storm started some of our kickers to kick, and they forgot to let up, with the wind.

A number of Government Telephone men are in town repairing the telephone lines. putting in new poles Etc., and are also putting a new line direct to Cardston.

On Friday evening last some of our merchants commenced with the 7 o'clock closing system, which will continue throughout the summer months.

Last week a number of R. N. W. Mounted Police, were in town looking for a couple of escaped convicts, who broke jail at Lethbridge, early in the week.

The Bowling alleys under the management of Mr. Jas. Dunn, were opened on Friday afternoon last. Mr. Dunn is to be congratulated on the neat appearance of the alleys.

Do not forget the Dance tonight at the Opera House.

"The Climax," a comedy, which will shortly be seen in this city at the local theatre, has a remarkably strong cast. Our exchanges speak of the company as being the very best seen in many seasons.

The wind on Saturday last blew another number of the "Northern Lights" out.

FOR SALE:—Clean Seed Oats $1.60 per hundred. Apply to Paul Schneider.

Mr. C. B. Strong, who has been working at the Mercantile Co's., store for the past six weeks, is now to de seen laying brick on the Security building.

Mr. and Mrs. D. A. Bennett returned from the south country, on Wednesday evening last, where they have been for the past month visiting. They were accompanied by Mr. Rawlin Bennett, brother of Mr. D A. Bennett.

One of the worst wind storms ever seen in this part of the country swept over the prairie on Saturday last, taking with it, everything that was moveable. The atmosphere was so full of dust that it seemed as if there would be total darkness, as it was, some of the business houses had to use lamps in order to see to work at their books.

The engagement of this company at the Opera House give promises of being the most important comedy event of the season. The play, which is in three acts, is so contructed as to give scope for the introduction of several intensely strong situations, and from the reviews seen of the production, "The Climax" will prove an entertainment of a very superior order.

"It's an ill wind that blows no good." There are now about 15 men working on the Security Investment Building.

FOR SALE:—500 five year old shade trees at 25 cents each.

J. W. Wixom

On account of an accident at the office, we were unable to get last weeks issue out.

Mr. Wm. Laurie, of Cardston, Town Solicitor, attended the council meeting Thursday last.

The "Climax" is to be played at the Opera Hause on Monday, May 15th Get your tickets early, and avoid the rush.

The water was turned into the canal last week, and is now to be seen flowing in the town ditches.

Messrs. Geo. E. Woolley, and Geo. Brewerton, Editors of the "Northern Lights" and "Ye Editor" were taken for a 20 mile ride in the Security Investment Co's., new Auto on Monday afternoon.

Mr. J. P. Holt was in town this week. He reports everything in good condition at the Homestead.

On Sunday at 11 a. m. at the residence of Bp. John F. Anderson, the funeral services of the 9 month old baby of Mr. and Mrs. Ed. McCarty former residents of Raymond was held. The Rustler joins with the many friends of the bereaved parents in this their hour of bereavement.

The train did not arrive until 11.30 on Saourday night last, owing to the fact that the wind made large sand drifts along the track which caused it to run off the track near Wilson Siding. No serious damage was done however, to either train or passengers.

Winnipeg, May 3.—During the coming month 500 bodies will be interred in Winnipeg cemeteries. All those who have died during the winter months when the ground was frozen up, were placed in the cemetery morgues. Tomorrow these will be opened up. In Edwood cemtery alone close upon 300 interments will be made as rapidly as the work is possible,

Are you going to "take the Climax in" if so you had better get your tickets right away, as this show promises to be the best of the season.

The following Program will be rendered at the Stake Y. L. & M. M. I. A. Conference which is to be held at the Meeting House Sunday evening May 21st.

Solo. Mrs. Arthur Nilsson.
Leture, Mrs. Zilpha Bramwell.
Duett, Fern Redd and June Anderson
Lecture, Geo. H. Budd.
Violin Duett, Uriel O'Brien and Lief Ericson.
Solo Albert Powell
Mixed Quartette Anthony Rasmussen and Co.

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O'Brien=Collet

On Monday last, Miss Blanche Collett, and Mr. Uriel O'Brien, left for Lethbridge, where they were married. This couple are well known in town, as they have both been workers in the Musical Circles of Raymond for several years.

The Rustler joins with the many friends of the "Newly Weds" in wishing them a long and happy life.

Closing Week of the Knight Academy

The Knight Academy will close in a blaze of glory. Beginning Monday, May 22nd next, the several classes, as also the Senior students of the piano, voice, violin and cornet department, will give free evenings, everybody invited, at which the students will appear in many and varied characters. Come and see them. Encourage the Knight by your presence These evenings are given for you and for your entertainment.

Following, then, is a somewhat detailed list of the programme to be given:

MONDAY EVENING, May 22nd, The Girls in the Physical Education Department, Mrs. J. J. Baker in charge, beginning at 8.30 sharp.

TUESDAY EVENING, May 23rd, The Juniors, with Roxie Rodeback as President, beginning at 8.30 sharp.

1—Overture,	Class Orchestra
2—Prayer,	
3—Chorus,	The Class
4—Prognostication,	Paul Redd
5—Dialogue,	Courtship Under Difficulty
6—Mandolin Duet,	Luinda and Violet
7—Sketch,	The Little Red School House
8—Toast,	Asael Palmer
9—Instrumental Duet,	Lief and George
10—Comic Recitation,	Walter Schmidt
11—Dialogue,	Going Somewhere
12—Selection	Class Orchestra
13—Farce.	Hans Von Smash

WEDNESDAY EVENING, May 24th, Mrs. Baker's Senior Students in Piano Voice, Violin and Cornet.

2—Duet Violin and Cornet	Walter Berryessa and Uriel O'Brien
3—Cornet Solo—Flight of Ages—Bevan	Walter Berryessa
4—Violin Solo { Serenade—Drdla Mazurka—Haesche }	Uriel O'Brien
5—Song—Should He Upbraid, Bishop	Mrs. Uriel O'Brien
6—Piano Solo La Zingaru Bohm	Dessa Johnson
7—Quartette, Violin, Cornet, Piano, (four hands)	Instructor Baker, Dessa Johnson, Uriel O'Brien, Walter Berryessa
8—Cornet Solo Serenade, Chapelle	Walter Berryessa
9—Piano Solo Arabesque, Lach	Dessa Johnson
10—Song — Protestations, Norris	Mrs. Leadbetter
11—Violin Solo Seventh Concerto, De Beriot	Uriel O'Brien
12—Piano Duet	Instructor Baker and Instructor Wright

THURSDAY EVENING, May 25th, The Seniors, with June Nilsson as President, beginning at 8.30 sharp.

1—Class Chorus,	
2—Invocation,	J. W. Evans
3—Buzzardette	The Buzzards
4—Original Story,	Jessie Redd
5—Character Sketch,	Members
6—Musical Burlesque,	Unknownables
7—Prognostication,	George Brewerton
8—Song,	June Anderson
9—Original Poem,	June Nilsson
10—Class paper,	J. W. Evans
11—Dramatic Sketch,	The Class

FRIDAY MORNING May, 26th, the Regular Commencement Program of the Academy, will be held at the Academy Auditorium at 10.30.

1—Hail to The Dawn	The School
2—Invocation.	
3—Overture	Academy Orchestra.
4—Report	President of Faculty.
5—Vocal Solo,	Mrs. Baker's Department.
6—Educational Address,	
7—Piano Solo,	
8—Short talks,	President Allen, Taylor Stake. President Wood, Alberta Stake.
9—Male Quartette	Royal Owen and Co.
10—Short talks,	The Preparatory Graduates, Ernest Bohne.
11—Awarding of Diplomas and Certificates.	
12—Music	
13—Prognostication. The Seniors,	Zella Johnson.
14—Overture,	Academy Orchestra.

Friday Evening, May 26th, The Academy will give a Grand Alumni Ball in the Academy Gymnasium, Commencing at 9 o'clock.

Admission 50 cents.

Council Hold Short Session.

The regular meeting of the Town Council was held at the office of the Secretary Treasurer on Thursday May 4th, with Councillors H. S. Allen, A. F. McDuffee, C. D. Fox, F. B. Rolfson and Jas. Hawkins, Solicitor Laurie, and Sec-Treas, Holt present.

Councillor H. S. Allen was appointed to see what could be done in regard to the changing of the irrigation ditch in front of the Knight Academy.

It was decided that children under the age of 14 years would not be allowed in the bowling alleys, and boys under 16 years of age would not be premitted there after 9 o'clock.

The Secretary Treasure was instructed to write the Board of Under-Writers and find if there would be any raise in Insurance Rate if the Fire Limits were made smaller.

The Works and Property Committee was instructed to purchchase a 14foot Canadian Ensign.

Councillor McDuffee was instructed to see to if the Telephone Co., were putting any of the new poles on the sidewalk.

Several other items of business were entered into that would not be well to publish, at this time.

EXCOMMUNICATION.

(Deseret News)

Today by unanimous vote of the council of the twelve apostles, it was decided that John W. Taylor be, and he is hereby excommunicated from the Church of Jesus Christ of Latter-day Saints for insubordination to the government and discipline of the Church.

Francis M. Lyman.
In Behalf of the Council.
Salt Lake City, Utah, March 28. 1911.

SEVERE WINDS SWEEP COUNTRY.

At 11 o'clock on Saturday last the lower part of the roof of the Security Investment Block, and part of the north wall were completely torn off, in one of the worst winds ever seen in this part of the country, as luck would have it no one was in front of the building at the time of the catastrophe The estimated damages done was about $1500.

Several other buildings in and around town were damaged and numerous small biuldings were blown over. The house of Mr. Geo. Court, which is located about three miles west of town was moved about 10 feet from its foundation, but none of the occupants were hurt.

ENDORSTED!

No company that we have ever heard of has ever come to our city with such favorable comment as "The Climax." This company has the unamious endorsement of the press and the public wherever they have appeared. You may rest assured that this will be your only opportunity to see this superior company, as they make but few stops enroute from New York to San Francisco. There is no doubt of their success here.

Owing to the severe wind which blew on Saturday last, the canal which supplies the Knight Sugar Factory was filled with sand, consequently no water was to be had for the running or the Dinamo which furnishes the town with power, hence the town was in darkness for three nights.

PRINCESS ZARA

By ROSS BEECKMAN

CHAPTER VI.—(Continued)

The Nihilist Spy

"To hear what you said. To get what information I could. I certainly did not do it for the fun of the thing."

"Well, my man, I will make a bargain with you. If you will tell me all that I want to know and answer truthfully every question I ask, I will engage that you shall go neither to Siberia nor to your death. You will go to prison, and I will keep you there long enough to find out if your information is correct. If it is, I will set you free as soon as I can afford to do so; if it is not, then Siberia, and the worst that there is in that delightful country, too. What do you say?"

"How long will you keep me in prison?"

"A month—six months—a year—as long as I deem it necessary. I shall want you near me where I can talk to you frequently, whenever the fancy takes me."

"I'll see you damned first!"

"Very well. I'm sorry for you. A few months in a comfortable prison, with the best of food, books to read, paper and pens at your disposal, permission to communicate with your friends as often as you please so long as I see your letters before they are sent away, ought to be preferable to ending your life in the mines of frozen Siberia; but the choice is yours."

"It is."

"Then why don't you accept my offer?"

"Because I don't believe you. You will get all that you want out of me, and then I will travel east any way."

"That is a chance that you will have to take. I arose and walked across the room to give him an opportunity to think it over. "You look to me like one who has seen better days," I said, when I returned. "You evidently are of a very good family; you are an educated man, and you are young. In all probability you joined the nihilists without really meaning to do so, and having later been selected for this work here, on account of your ability, you were afraid to refuse it. Suppose that I should keep you imprisoned a year, or even two, what is that to the fate that awaits you if you refuse to do as I ask, or to that which you would have met, if you had refused to obey the men who commanded you to come here. Answer me."

"A joke."

"Precisely. Now, here is another question: if I should let you go free after you betray those men to me, what would your life be worth the moment you got upon the street, even if I provided you with passports out of the country?"

"Nothing."

"They would find you, wouldn't they?"

"To a certainty."

"And kill you?"

"As surely as you stand there."

"On the other hand, if I send you to a prison here in St. Petersburg, as I have proposed, you will be thought by them to be dead, or in Siberia, and that is about the same thing. In the meantime you can write to anyone who you wish to have know that you are still alive; you can receive replies under an assumed name, and——"

"Enough, sir: I accept. You have guessed rightly when you said that I am not a nihilist at heart. I am one because I love a woman who is one. That will suffice for the present. Later, I may tell you more about it. I am disposed to make another condition concerning her, but I see that it would be useless; and perhaps you will grant me a favor if I ask it, when you discover that I have not deceived you in what I shall tell you."

"You may be quite sure of it, if it is a reasonable one. Now tell me your name."

"You do not care about my true name, I suppose?"

"I want the one by which you are known among the nihilists."

"Jean Moret."

"And here, in the palace."

"The same."

"I shall send you to your prison now. I cannot promise what it will be for to-night. To-morrow I will see you and will keep my word in every respect. In the meantime I want you to think over all that you have to say to me so that we may lose as little time as possible when we meet again."

I left him then and went to the door. Outside, waiting in the corridor was the prince, and in a few words I explained to him what had taken place during his absence, at the same time apologizing for having sent him from the room. Then I asked that the captain of the palace guard be sent for, and in a few moments Jean Moret was placed in his care. After that the prince and I smoked another cigarette together and then parted for the night.

"Mr. Derrington," he said, as he was about to take his leave, "I am more than ever convinced that you are the right man in the right place. Tell me how you discovered the presence of that spy. I had no idea that he was there, and thought that we were entirely alone."

"I knew he was there the moment we entered the room," I replied. "It is my habit to glance at everything whenever I enter an apartment, and I do it now without realizing that I do so, if you can understand the seeming paradox. When we passed the threshold I saw instantly that one of the curtains did not hang properly, so I seated myself in a position from which I could keep it in view. Twice I saw that it moved; a very little, to be sure, but enough to satisfy me that somebody was concealed behind it. That is the reason why I rather forced the conversation in English. The rest you know. I am convinced that the man we captured is the victim of circumstances, and I think I can make him very valuable."

"Well," acknowledged the prince, "there might have been a man behind every one of the curtains and I would not have thought to suspect it. This service alone, Mr. Derrington, is worth all the pay you will draw from Russia."

"Yes," I replied, "for I believe that the spy will confess to me that he was sent there with orders to murder the czar."

"My God! And even now there may be others of the same sort in the palace."

"No; I hardly think that. The nihilists would not be likely to send more than one at a time on such a dangerous errand."

Moret confessed to me the following day, and I speedily was convinced that my suppositions concerning him were correct. He had not had the brutal courage to carry out his orders; and already he had received several warnings from his compatriots that if another week passed without his accomplishment of the design, his own life would pay the forfeit. He was in the room awaiting my arrival when he had heard me approaching with the prince, and had concealed himself behind the curtain without any definite purpose other than to hear all that he could.

It is hardly necessary, and there is not space, for me to go into the details of my subsequent talks with Moret. Suffice it to say that the information I gleaned in that way, proved of inestimable value to my work. From it I learned the names of all the leading nihilists of St. Petersburg and of Moscow, their meeting places, their passwords, and several of their ciphers. Concerning their plans for the future, beyond those in which he was personally engaged, Moret knew almost nothing; but he did put me in the way of finding out nearly all that I wished to know. Nor is it necessary that I should describe my subsequent interviews with the emperor. My plans were adopted almost without a correction—and most of those I suggested myself—so that by the time I had been an inmate of the palace for a week the reorganization of the Fraternity of Silence was well under way, and ere a month had passed, it was an established fact.

There was one point upon which Moret stubbornly refused to talk, and that was concerning the woman who had led him into the difficulty, and who, he confessed, was the brains and the real head of the society. I questioned him very closely and so decided in my mind that she was prominent at the capital; but at the last he positively refused to answer any further questions concerning her, saying that he would rather go to Siberia and have done with it at once than to betray her. I desisted, therefore, believing that ultimately he would denounce her to me without knowing that he had done so, and events proved that I was right, though they afterward demonstrated that it would have been much better for all concerned had he trusted me implicitly in the beginning.

Thus, at the end of a month succeeding the night of my ride from the hotel to the palace with the prince, I was prepared to commence work in earnest; but it must not be supposed that I had been idle, personally, during that time.

In fact, I was never so busy in all my life as during those four weeks of preparation for the stupendous task I had set myself; and you will understand that there were countless things to do, unnumbered details to arrange, and a thousand and one ramifications of the work to be planned and plotted and thoroughly comprehended, not only by myself, but by the men I would gather around me to work under my direction.

The organization of a secret service bureau, no matter how general may be its duties, is at least a monumental task; but the organization of such a bureau as this one whose very existence must remain a secret from all the world, presented difficulties not to be met with or contended against under any other circumstances.

It was necessary that I should become the chief over an army of men, and it was equally imperative that not one person among the rank and file of that army should know of my existence, as it was related to them. With the chiefs of departments and sections, it was necessary that I should have intercourse and interviews, but I had already made my mental selection of persons to fill these positions when I arrived in St. Petersburg, and the organization of the several departments was to be left in their hands.

I was determined that there should be no phase of Russian life which could hide itself away from the skill of my investigating forces; from palace to hovel, from the highest official in the Russian diplomatic service and in the army to the meanest servant or laborer, my sources of knowledge must extend, and every detail of it all must necessarily be so complete as to render it not only exact, but absolutely under my personal control and supervision, without, however, in any way creating the suspicion that I was personally interested. Presently you will understand more perfectly how this all came about, and in quite a natural way, it would seem, for always things accomplished seem easy enough to the casual observer; and you who read are only observers, after all. You are receiving a bit of unwritten history which closely concerned the Russian Empire and without which the assassination of Alexander would undoubtedly have happened many years before it did, for I give myself the credit of having extended the days of that really great but much misunderstood Muscovite gentleman.

At the time of my appearance in St. Petersburg the forces of nihilism had assumed proportions greater than they had ever attained before or will ever attain to again, thanks to my activities. The palace itself was a hotbed of conspiracy; the rank and file of the army was so disaffected that the officers never knew whom they could depend upon or whom they might trust; a secret pressure of the thumb, indeterminate in its character but nevertheless significant, was likely to be received from any hand clasp, no matter where given or with whom exchanged, and a princess or a countess was as likely to bestow it upon you as any ordinary person whom you might chance to meet. The pressure itself was merely a tentative question which might be translated by the words, "Are you a nihilist?" and you might understand it and reply to it by a returning pressure of acquiescence, or ignore it utterly, as you pleased. The pressure itself was so slight, was carelessly given and might so readily be attributed to a careless motion of the hand that it could not betray the person who made it; nor could the answering pressure do so.

I had not been long at the palace before I discovered that many of the high officials who had ready and constant access there had become inoculated with the nihilistic bacilli and although I had no doubt that many of them at heart were loyal to the emperor, I already knew better than they did the immensity of the obligation they had undertaken in swearing allegiance to an association of persons dominated by fanatics and by actual criminals whose trade was murder and whose chiefest pleasures and relaxation was the study of how best to bring about entire social upheaval.

The confession of Moret enabled me to read every sign, however slight, that was made by these persons, and the four weeks of my domicile in the apartment of the palace that had been assigned to me served me as nothing else could have done in this respect.

You have already been told that this was by no means my first experience in St. Petersburg and with nihilism, but I must confess that extensive as my information had been and was that I had never for a moment contemplated the vast resources of this revolutionary order, its unlimited ramifications, and its boundless possibilities for evil. To discover as I speedily did, that princes of the blood, that ladies high in place, that generals in the army and lesser officers under them were among the ranks of the nihilists, was an astounding fact which I had not contemplated and which I was ill prepared to receive so soon after my arrival. It extended the requirements of my operation; it increased tenfold, nay, a hundredfold, my obligations to the czar in whose service I was now sworn.

It seems difficult to imagine a beautiful woman as being at the head and front of such an organization which discusses murder and which arranges for wholesale assassination with the same equanimity of conscience that a hunting party at an English country estate would arrange for the slaughter of rabbits or pheasants.

But I was destined soon to discover that even this could be true. I was destined soon to be brought in contact with a beautiful woman who was not only high in place and a favorite with the czar himself, but who was actually a leader in the plots against him.

CHAPTER VIII.

The Princess's Oriental Garden

In order to better carry out the plans I had made, it was necessary that I should depart from the palace, and I secured apartments in a respectable but quiet section of the city, where I established myself under the name of Dubravnik; and it was generally understood by those who came in contact with me that I was a pardoned exile who had been permitted to return under stipulated conditions, as such men are sometimes, though rarely, allowed to do. In the meantime I had gathered around me certain individuals whom I had known and employed in the past, and whom I knew from experience that I could trust. And there was not one Russian among them. The Russian may be trusted always wherever his heart is involved and his political conscience is not, but never unless those forces are working in sympathy with the employment of his hands and head.

I sent to Paris for Michael O'Malley, whose long residence there had transformed him from an Irishman to a Frenchman, and who for convenience spelled his name Malet, thus retaining the sound without the substance. He opened a cafe, which because of its excellence speedily became the resort of the higher officers of the Russian army stationed at St. Petersburg. Every one of the waiters in his establishment were spies in his employ brought with him from Paris, and not one of them knew of my existence. Thus they did their work in the dark, but they did it well. Another Irishman, Tom Coyle, who looked like a Russian, established a cab stand on the English plan, and he had a small army of men under him who worked in the same way as Malet's servants. A Frenchman and his wife—their names were St. Cyr—ran a high class intelligence office, and furnished valets, maids, cooks, coachmen, etc., for the best families at the Russian capital. I had one assistant who taught singing to the nobility, and another who was a master at arms and gave lessons in the science of handling all kinds of weapons. In the less pretentious quarters of the city I had proprietors of fourth-rate cafes on my list; also loungers, loafers, seeming drunkards, laborers. But more important than these, I succeeded in securing for one of my best men—an American—the management of the city messenger service; and one by one he contrived to replace the messengers by others of his own selection, until many of them were unknowingly members of my staff. Unknowingly, mind you, for therein existed much of the secret of my power. My workers did not know what they did. Canfield really did great work for me while he held that position, and I must not neglect to give him credit for it.

O'Malley, Coyle, the St. Cyrs, and Canfield were really therefore the several component parts of my immediate staff, and those five were the only persons among all my hundreds of workers who knew Dubravnik to be their chief; and it is a perfectly safe statement to say that in all St. Petersburg, nay, in all the world at that time, there were but nine persons living who had the least knowledge or even suspicion of my business. The nine were the czar, Prince Michael, the five already named, myself and Moret, now in solitary confinement, although in a comfortably appointed room in one of the prisons.

It is well that I should say a word or two in reference to these assistants of mine, in passing.

O'Malley was an Irishman of the finest type of bluff and honest manhood. I have known him and tried him through many a difficulty where his sterling qualities of character, his rugged honesty of purpose, his unfailing loyalty and devotion to me and his uncanny qualities as an investigator had endeared him to me both professionally and personally beyond the expression of mere words to describe it. I knew that I could rely upon him absolutely in all emergencies and that he was utterly fearless in the face of any danger that might present itself. By opening the cafe described, patronized by the elite of the Russian capital, he merely followed out a plan long before undertaken in Paris for a like purpose, and through the workings of his waiters and other information he possessed sources of information and facilities for investigation unprecedented in their far-reaching possibilities. There is many a whispered word and undertoned conversation carried on at a supper table over the coffee or a bottle of wine which finds its way into the ears of servitors, and O'Malley's duties consisted not alone in piecing together after they had been supplied to him these scraps of conversation, but in having his workers spy upon certain personages when they appeared at the cafe, and so anticipate secrets which they might have to unfold. Even he had lesser men in authority under him, and many of those who were almost directly under his employ believed that they were allied to the regular secret police and did not know of their employer's official capacity.

Tom Coyle, a huge, rough-bearded Irishman who in outward appearance might have passed anywhere for a Russian, was not less efficient or less loved and trusted by me than O'Malley. As a proprietor of a cab stand every driver was a minion of his and served him precisely as O'Malley's waiters did their chief; and it may readily be determined that the power thus exerted for making reports, for knowing the distinction and the engagements of certain individuals was far-reaching indeed. Coyle also had served me in the execution of many delicate missions of the past, and I could depend upon him almost as absolutely as I could upon myself.

The two St. Cyrs, husband and wife, were equally important factors in my work; indeed, they provided the most far-reaching assistance I had, for if you will stop to consider a moment and will realize how absolutely at the mercy of house servants the ordinary citizen is compelled to be, you will understand how an employment agency operated for the purposes of espionage can discover and reveal secrets which otherwise might never find their way outside the family circle. There is no written document, no hidden pocket, no secret hiding-place into which the prying eyes and fingers of a maid or valet, housemaid and general servitor cannot penetrate. These people did their work for the St. Cyrs and reported to them, knowing nothing whatever of why they made those reports or to whom they ultimately found their way.

Canfield also was invaluable. As managing director of the messenger service with many of his employees working as spies, it was a comparatively easy matter to intercept letters and messages and to obtain a knowledge of the contents of documents through their skilled efforts.

I have given this resume of conditions as I established them to avoid going into detail respecting the sources of the information I made use of, but it will be understood now how thorough was my knowledge whenever I chose to exert it.

During the time that passed as I have described, I became a factor in St. Petersburg society. Supposed to possess unlimited wealth (accumulated, by the way, in Mexican mines, for it sounded well) with the crest of a noble family then extinct and ornamenting my cards and stationery and introduced by Prince Michael, who was known to be in high favor with the czar, palace doors were thrown open to receive me. I was young then, and women said that I was handsome, while men found me genial, companionable, and their master at most games and with every sort of weapon; things which men respect even if they do resent them.

The regular police systems, even to the mysterious Third Section which has no equivalent or parallel in the world, were entirely ignorant of my espionage, and many times during the months that followed I fell under suspicion. My power was so much greater than theirs that I possessed one abundant advantage, that of knowing their spies; and many of these, from time to time, I purposely allowed to become inmates of my house, from which they inevitably carried away the precise information that I wished them to obtain.

(To be continued)

ARE THE PLANETS INHABITED?

How many times has it been asked and in what diverse fashions has it been answered, that question as to other worlds than ours? In our own days, D. Flammarion has mingled a great deal of imagination with his astronomical knowledge. Mr. Wells has mingled a very little science with his imagination, and each has dealt with the problem after his fashion. Now it is the turn of the scientist who has tried to restrain his imagination and keep it within legitimate bounds, M. Edmond Perrier, of the Academie des Sciences.

M. Perrier has had the curiosity to work out the problem of planetary zoology on scientific lines, utilizing all the material that modern science has placed at his disposal. Allowing a generous margin for the uncertainty of many details, he considers that he has established the validity of the same biological laws throughout the solar system, and that by taking the forms of life obtaining on our globe as a starting-point, he can calculate, at least approximately, those which exist on this or the other of the planets. Jupiter, Saturn, Uranus, and Neptune are probably sterile. These giants are but of sterile density, and have not yet cooled to the point of habitability by any organic life we can conceive [illegible] [illegible] but of court as possible [illegible] whether [illegible] or otherwise. This leaves us with Four Planets: Mars, the Earth, Venus and Mercury. The last, nearest of all to the sun, is but one third the size of the earth, with an average temperature of 103 degrees Centigrade. No life is conceivable there, unless it be that of disembodied spirits, not those of the blest.

We need not linger over the Earth. We know too much about it to be interested. Venus, with an average temperature of 56 degrees Centigrade, has a moist and cloudy atmosphere. Organized life is more than probable; a life that is violent, vigorous, abundant, but less advanced than our own. Butterflies measuring a yard across the wings and beetles of proportionate size hover about the crests of giant ferns and exaggerated grasses. Mighty frogs croak in the steaming marshes and are devoured by enormous saurians. Fish there may be, but fish of the primeval slime, monstrous caricatures of tropical splendor. Neither bird nor mammal has yet appeared. Mars is the elder brother of our Earth, the only possible world whose life can approach our own. Its light is soft, its temperature moderate on the average, but with tremendous ups and downs. It is a planet of flowers and butterflies by day and fires and furs by night. There are almost certainly men in Mars, says M. Perrier, and more advanced than we are. They are tall and well formed, because weight is more easily carried; fair because the sun's rays are less burning than with us; Scandinavians of a slender type.

THE MISSISSIPPI SNAG-DESTROYERS

Every year, when the crest of the "June rise" has swept down the Mississippi valley and the stored water of back creeks and flooded lands has found its outlet, from several ports on the big river and its tributaries there begin the annual trips of the "snag boats," whose object it is to break up the nests of snags left by the floods and clear out thoroughly all such obstructions to navigation.

For many years, until the time of Shreve, from source to mouth the banks and even the channel of the river bristled with the stumps and branches of sunken trees and logs. Eddies and bends were choked with intricate drift piles of branches, roots, and trunks. Beneath apparently safe waters in the swiftest of the current often lurked a hidden tree ready to tear the bottom from whatever boat encountered it.

About a hundred years ago, urged by insistent Westerners, Congress sought a remedy. Captain Shreve had invented a boat which he called a "snag boat," which he believed would clear the channels, and in 1829 he began work with his "Heliopolis" as Superintendent of Western River Improvements.

The attempt was a success. The "Heliopolis" was a double-hulled vessel, having a powerful beak, or ram, built between the hulls forward, and so massive that it could withstand any blow the engines could give. Above it were winches, crude, but good for their day, and an equipment of tackle, saws, and axes.

With this boat the snags were attacked. The practice was to send the beak among them at full speed and so break up and scatter the branches, then, lowering lines, the master would "snug on to" the obstinate trunks, apply power to the winches, hoist the logs, saw and chop them to bits, and allow the pieces to float away harmlessly.

In this way Shreve cleared the river in a remarkably short time and later removed the great raft that obstructed the Red River for one hundred and fifty miles.

The "snag-boats" of to-day have discarded the beak and have substituted for it a huge roller mounted between the hulls, over which to draw the snags. On the twin decks is placed a whole battery of steam-hoisting engines and derricks equipped with cables, the largest of which will lift a dead weight of one hundred and fifty tons.

The work is as much preventive as it is curative. Every tree on the river bank which bids fair to fall into the stream is cut down and sawed up. The work of a single "snag-boat" in one season, from July to March, was the removal of 2,507 tree snags from the bottom of the river, seventeen immense drift piles from their anchorages, and of 5,875 trees from caving banks.

SIX HUNDRED WIDOWS

Photographs of the late King Chulalongkorn's funeral have reached England, and the Illustrated London News reveals to us the strange sight of six hundred widows mourning their lost lord! Though the western mind has been much influenced by democratic ideas, it must be admitted that the late King of Siam embraced a far wider conception of human relationship. The individual aspect of marriage gave place to a state of things quite unthinkable to the Western mind.

Maha Vajiravudh, the new king, is likely to favor conditions more western in character. While in England he studied under a British tutor, Mr. Basil Thompson, after which he went to Sandhurst, and afterwards to Christ Church, Oxford. Nor was his military experience neglected, for he was a cadet at Potsdam and was attached to the Durham Light Infantry at Aldershot. His influence was at once felt upon the death of his father last October. The usual ceremony of drinking water in honor of the new king was observed with due regard to precedent but the extravagant waste in connection with the cremation was omitted and the function simplified. The reference to water drinking reminds one that the Mahometan people regard water rather than wine as a ceremonial drink. Also they are among the most polygamous peoples of the world; in fact, it would seem that the Oriental people, apart from the Aryans, or the distinctions of India and the Slavs, are by nature polygamous. Solomon, no less than the Sultan of Turkey, was a man of many wives. And in Mussulman India, of course, the same holds good.

In Fiji, even after British rule has begun the march of western ideas young girls were betrothed in childhood, their "intendeds" being for the most part grown-up men. The government has stepped in, of late, and marriage is made conditional upon the ability of the husband to provide for his future wife, a condition which one cannot but regard as useful. For, after all, marriage is a fettering of an individual freedom for the general good. In New Britain, an island in the region of New Guinea, a hopeful aspirant approaches the father or mother of the prospective bride, whose name he whispers. Thus the choice is made. If the parents be dead, he applies in this stealthy and mysterious way to the chief of the district, who nods approval or frowns displeasure. Intermarriages between tribes is forbidden. Unlike Europeans, these people know instinctively that racial individuality is a necessary condition of social security and good breeding. In Turkey a responsible citizen is allowed four wives and four slaves, whom he may regard as extra wives. But according to the Koran this depends upon his ability to support them. The husband is compelled to provide a dowry, part of which is paid in advance for the trousseau and other preliminary expenses.

MAKING APES OF OUR FATHERS

Man lived on earth long before the earliest records of history. The existence of prehistoric man has been demonstrated; the existence of fossil man is attested by thousands of objects found in land formed long before the present geological epoch. Objects hewn from stone, bone, ivory, and reindeer horn have been found with the bones of the animals that lived when these objects were made.

In France, among the remains of the ancient inhabitants of that country, there have been found the bones of the reindeer, the glutton, the antelope, the rhinoceros, huge felines, and the cave hyena. And in older earth rough tools of stone lay for lost ages with the bones of the antique elephant and other animals, and with fossils of plants now seen nowhere but in the hottest regions of the globe.

Man has seen his climate, his fauna, and his flora change profoundly and more than once. It is impossible to estimate in centuries the time since his first appearance on the earth, but some investigators fix the date of the origin of humanity at a time between 60,000 and 240,000 years ago. Whatever the date of that origin, from the industrial point of view primitive man was not very far to some of the anthropoid apes. His first arms were stones and the branches of trees. Primitive man used tools made from splinters of rock roughly reduced to working size by percussion. Little by little, the first generations improved their tools and progressed, and at the time when the reindeer was the commonest of all animals in the land now known as France, man had gone far enough in his evolution to make rough representations of the animals around him in stone and in painting.

Within the last half-century, there have been found in France a number of fossil skeletons of a race of great physical development; very tall and very robust, with many remarkable features. Specimens of a more ancient race, closely resembling negroes, have been found by the Prince of Monaco in a grotto near Mentone. In more ancient ground skeletons of a far more bestial type have been located. At first it was believed that these were skeletons of men who had been deformed. But all the skeletons of the same epoch, whether found in France, in Switzerland, or in Germany, were of the same low type. These ancient men were very short, but very strong and gorilla-like in their bone structure, with flat skulls, and over the little hollows of their eyes enormous protuberant eyebrows ran from temple to temple in a continuous line. Their cheek bones were high and prominent, and the shape of their chins and the formation of the entire jaws were those of apes. In numerous anatomical peculiarities and in their brain formation (as shown by plaster casts of the interiors of their skulls) the resemblance may be traced. The farther we go into the past, the more bestial we find the human type. The race of Neanderthal, the oldest race of which we have knowledge, resembles the chimpanzee, the orang, and the gibbon even more closely.

Since man first appeared upon the earth his environment has changed, so it is not unreasonable to suppose that the human type has changed since the time of the race of Neanderthal which fashioned the rude instruments found in silex. It may be that from the deep earth something will yet be brought to light to prove that prehistoric man more than resembled—was—the chimpanzee.

THE STRENGTH OF ICE

The necessities of war have not infrequent led to valuable discoveries of a practical scientific character. The French ministry of war has for some time been studying the capacity of ice to bear weights.

It has been found that when ice has become about an inch and three-fifths thick, it begins to bear the weight of a man who is marching alone. At a thickness of something over three and one-half inches it will bear files of infantry. When it has become four and three-quarters inches thick it sustains light artillery or carriages, and at eleven and four-tenth inches, it bears the heaviest weight that the transporting of an army requires.

These conclusions of the French military authorities may have some interest for skaters, but it should be pointed out that they apply only to "young" ice. Successions of colder and warmer weather produce, in the course of a few weeks, a change in the structure of ice which greatly weakens its power of resistance to pressure. Accordingly, the measurements and estimates given above should not be trusted in the case of ice that is not of recent formation.

When putting up muslin blinds, if you have to put a rod through the hem, slip a thimble on to the end of the rod, so that it will not tear the muslin.

Pictures are often hung too high. Remember that the centre of the picture should be on a level with the eye. Do not overcrowd your walls. Crowding detracts from beauty.

Laying a fire well is considered by some to be an art. The "art" consists in crossing the sticks carefully and not using too many of them.

FASHIONS AND FANCIES

A CHARMING afternoon street gown of black velvet, designed for the Riviera, worn with a small shoulder cape, has its loosely fitted corsage made half of velvet and half of black Brussels net, thickly woven with small steel beads. A large silk-covered cord joins the two materials. The elbow sleeves, shaped in one with the net upper part, are drawn with slight fulness into a tight band covered with a twist of black satin; at the back of it drop little pointed tabs edged with the tiniest of steel buttons; a black satin belt, much wrinkled, ties at one side, with larger, button-trimmed tabs, and an odd yoke-shaped velvet collar, its edge cut straight across from shoulder to shoulder, leaving the throat exposed, is fastened with a black satin cravat to match. The short skirt seemed unusually graceful; plainly fitted in front and on the sides, with a little fulness gathered into a small space in the middle of the back. The hat worn with this costume is quite in harmony—a large, flat one, posed in a way to show the back hair, covered smoothly with black satin and trimmed with gray lace—two bands of it, one laid flatly on the brim, close to the crown, the other circling it, the ends are hidden under a puff of short, black feathers. Gray velvet faces the wide brim. A new long coat of pale gray ratine, I saw the same day, had a quite special air of novelty and smartness. The skirt was attached to the body part, in a round, short-waisted line covered with a plain, wide belt of the material corded on each edge, and fastened at one side of the front by a cloth-covered buckle. The round neck was finished simply with a big, cloth-covered cord. The front lapped a bit in its closing with three big, cloth-covered buttons, set on inside gray horn rims. Under a short, close cap the sleeves, slightly fulled, were gathered again into a straight wrist band, loose enough to allow the passage of the hand. Band and sleeve cap were finished with the cloth-covered cord.

Orange Satin Gown with Gold Embroidered Tunic

Without losing any of its smartness this coat could well be copied in white cloth with black velvet buttons, belt and sleeve bands.

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Also, original and interesting, I thought, was a coat of black satin seen at the same house. This was made in separate skirt and body part, but the skirt, gathered at the back only, was belted in a highly ornamental fashion with a much-trimmed belt, raised a little higher in the back, buckled in front. Small triple collars covered the shoulders, meeting narrow triple revers that lengthened to the belt. Long, straight and tight, the sleeves finished in small down-turning triple cuffs. The trimming, jet and heavy silk embroidery, was concentrated on the wide belt and jet buckle; all other decoration was confined to a silk-covered cord that finished all the edges. The description will show these coats to have strong Directoire suggestions.

Fillet lace and linen fringe trims a new, long coat of string colored broadcloth—an elegant garment. Close-fitting, the seamless upper part is joined to filet lace just below the hips in a wide band, and is lengthened to within a quarter of a yard of the ground by heavy filet fringe. A sleeve cap, shaped with the body part, is trimmed with narrower fringe that falls over a lace elbow puff drawn into a cloth cuff; the cuff flares, lace-covered buttons trim it; and there is a small, square, fringed lace collar.

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Fringe is prominent on silk street costumes. Particularly desirable is one of black satin and black velvet, made with double skirts. The scant lower skirt of black velvet clears the ground; the silk one is a little shorter all around and in front curves a foot or so higher.

At the back the thick, coarse, silk fringe that trims it, reaches just to the edge of the under skirt. Quite new in form, the straight-cut, half-long coat is loosely belted with heavy, double silk cords; knotted at intervals, the cords finally gather themselves into a large flat rosette, closing the coat as it slightly laps to one side.

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Of extreme elegance is a tailored costume of fine black cloth, trimmed with velvet bands covered with a lattice work of fine silk cord. A wide band of it, knee high, crosses the skirt, to disappear under the edges of a wide box-plait that finishes the back breadth. Flat velvet and cord buttons hold the edges of the plait—set in clusters—to the edge of the trimming. Made entirely of the lovely netted velvet is the wide, square coat collar and cuffs, and a half belt that holds a bit of fulness high in the back.

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Among the new tailored costumes for late winter at the Riviera, and early spring in town, appears the perennial black and white wool mixture. The material, however, seems quite new; a soft, coarsely woven, white stuff barred off with wide black lines into inch squares, and the corsage suggesting a belted Eton jacket, has a pleasing air of novelty. Revers, extremely wide at the shoulder, narrowing as they descend to the belt, where they lap, and bag a little, are faced with ratine, and double cuffs, one of white ratine, the other of black velvet, trim the long, tight, coat sleeves; there is a wide collar of black velvet that turns back the neck, meeting the revers on the shoulder and held over them, a little, by white ratine-covered buttons. Close-hung and short, the skirt opens at each side over a narrow panel of the pretty white material. Three large, flat, velvet-covered buttons set close together on the edges of the skirt, at the openings, serve to weight it nicely.

A new skirt, practical in any material, had its closing at one side of the front; it laps a good deal and buttons to the knees, while below, it falls free. There is but one seam in this skirt—that in the middle of the back, and it fits easily over the figure.

The openwork, known as English embroidery, is seen on many of the new materials. In conjunction with plain materials, it promises to gain a great vogue for the coming season.

A new gown of fine white crinkled crepe has the upper of its double skirts finished with a wide border of it done on the material. Over the low-necked and short-sleeved corsage of the crepe a square piece of the embroidery mounts, back and front, and is held over the shoulders by crepe-covered cords. A band of shirred white silk, framed in two lines of cords, belts it at a high, round waistline.

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A short sheath gown of white silk English embroidery has a chemise tunic of white silk voile. Open at the sides, a silk-corded fringe weights it prettily, and it is belted with plain white silk tied in a long three-looped bow at the back; two of the uneven loops stand up against the corsage, the others drop downwards, while a stiff knot marks the middle.

Lace, also, is expected to play an important part in new gowns, particularly the heavy laces like Bruges, Venice, Point de Flandres, and Genes. Even on lingerie gowns, and on underclothes, these heavy laces have thrust the finer ones from their place.

Berthas of such lace make charming adjuncts, but, naturally, when the fichu is selected for the trimming of a corsage the soft lace will still be preferred, and also as a trimming for the surplice corsage it remains a favorite. For the shawl shaped draperies and for the new shoulder capes the heavy laces are effective. New lace caps lately seen are trimmed with tiny silk ruchings.

Extremely handsome is one worn with a gown of dark blue, stamped velvet closing at the neck in front, from the bust it rounds towards the back, until it touches the waistline, the edge slightly ripples, and there is a long, pointed hood of the lace, trimmed also with the pretty ruching. A long silk tassel, matching in color the ruching, tips the point of the hood, and the ribbon-strings that tie the front are finished with smaller tassels.

This cape is a smart little garment, and in all materials and trimmings will be one of the season's successes. When launched at the grand races in the late summer, it was greatly admired.

Already some foulard and surah silk gowns have been sent to the Riviera, and in their decoration narrow ruchings, made of strips of pinked silk, are used with great ingenuity.

Worn in a recent play, a sweet gown, having the effect of flowered silk, but in reality of white, coarse, big-figured lace overhung with ecru net, is charmingly trimmed with pinked silk ruches. Two rows are on the skirt, one at the edge, the other a foot above. The short, full sleeves are drawn into a wide band above the elbow, edged on each side with the ruches, and a Marie Antoinette fichu of plain, soft silk, with long ends that, after crossing on the bust, ties in the back, is trimmed on all its edges with them. This is an admirable model for summer gowns of silk or voile.

Lace with Pearl Bands

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The pretty fancy for trimming cloth gowns with accessories of mousseline de soie is prettily shown on a Drecoll gown of chalk-white cloth. A wide sailor collar and deep cuffs of dark royal blue mousseline de soie, unlined, have a two-inch-wide hem, stitched finish. The collar is fastened by a cravat of it, and a band of the dark-blue mousseline de soie, wrinkled over a white ribbon, forms the belt.

with

A gown of violet silk is trimmed in similar fashion with grey mousseline. Pure white on a gown of black satin is adorably simple and becoming, and this delicate fancy may be varied indefinitely. A gown of soft material made with a well fitted-corsage, short, close, elbow sleeves, and a scant, trailing skirt gathered to a round waist-line, has no decoration of any sort except an immense collar of Venice lace, square in the back, it drops to the top of the high, wrinkled belt; in front it shapes slender revers, descending to tuck inside the belt. The soft corsage between the revers is finished into a low square.

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The little accessories of a woman's gowning, hats, scarfs, veils, shoulder capes, muffs made of satin, chiffon and lace, or of material matching the gown, seem of more importance at this moment than the gowns themselves.

VETERANS OF THE WEST TO ASSEMBLE

Grand Reunion of ex-Soldiers to Be Held in Winnipeg

The Imperial Veterans' Association of Canada, which consists of forty-three companies of the Veterans' Brigade and affiliating units, has decided upon having a Grand Reunion and Parade of Veterans, to be held in Winnipeg during the Exhibition, July 15th, 16th, and 17th. There will be a monster church parade on Sunday, July 16th, when it is expected that medals will be distributed to all outside veterans attending. This is the first Grand Reunion of the veterans of the West, and hundreds will attend from their homesteads, and various peaceful occupations, from all points of the three prairie provinces and British Columbia.

The combined forces of the Imperial Veterans' Association and the Veterans' Brigade now number over forty-three hundred registered members, and the various units are scattered over the West from Port Arthur to Vancouver, the great majority being in the Province of Saskatchewan. In order to assist the Winnipeg Committee of fifty veterans, one hundred outside members have been appointed to bring their various localities into line.

The veterans expect to be reviewed in line of march by the Lieutenant-His Excellency the Duke of Connaught, and other notables.

The committee of one hundred to assist provincial staffs is as follows:

Capt. J. Gronow, Lloydminster, Sask.; Capt. J. Walton, Prince Albert, Sask.; A. V. Mouat, Pincher Creek, Alta.; W. J. Keating, Fort Frances, Ont.; H. B. Savin, Ashcroft, B.C.; H. J. Brown, Elbow, Sask.; Thos. Leslie, Holland, Man.; Douglas Ruse, Bradwardine, Man.; L. C. Willoughby, Lashburn, Sask.; Wm. Sheets, Carman, Man.; Henry Lett, Estevan, Sask.; Capt. G. H. Irvine, Rosetown, Sask.; Capt. E. P. T. Brokovski, Battleford, Sask.; Lieut. R. R. Racey, Port Arthur, Ont.; John E. Chisholm, Moose Jaw, Sask.; Lieut.-Col. W. H. Cunliffe, Calgary, Alta.; Sheriff G. B. Murphy, Moosomin, Sask.; Major F. Carstairs, Edmonton, Alta.; Capt. Geo. Bowler, Ponoka, Alta.; Capt. J. W. F. Meek, Grenfell, Sask.; Capt. G. S. Willson, Eburne, B.C.; Capt. E. B. R. Pragnell, Swift Current, Sask.; Lieut. Ed. S. Harrison, Yorkton, Sask.; Sheriff E. C. D. Pigott, Morden, Man.; John Mustard, Victoria, B.C.; Wm. Wood, Magrath, Alta.; Capt. Wm. Crawford, Kelowna, B.C.; R. Barlow, Moose Jaw, Sask.; Major Geo. Weldon, Grenfell, Sask.; Capt. J. Woodside, Port Arthur, Ont.; A. Clubb, Edmonton, Alta.; James Skinner, Rockford, Illinois; R. C. Laurie, Battleford, Sask.; J. S. Muskleston, Calgary, Alta.; S. T. Haskell, Macklin, Sask.; J. T. Brown, Belmont, Man.; W. J. Stinson, Austin, Man.; Donald Matheson, Brookside, Sask.; G. H. L. Bossange, Wolseley, Sask.; A. Cormack, Harding, Man.; Arthur Smith, Portage la Prairie, Man.; Wm. Cochrane, Pelly, Sask.; Geo. F. Salmon, Riga, Sask.; Robert Drewery, Chicago, Ill.; Wm. G. Lauder, Sidney, Man.; Samuel Johnson, Tantallon, Sask.; Alex Ferguson, Regina, Sask.; G. H. Aston, Fairview, Sask.; A. J. Cleverly, Napoleon, Wash.; John Holtby, Wyecombe, Ont.; Wm. Tandy, Yonker, Sask.; R. G. Pearce, Glen Elder, Kansas; John S. Tullis, Cullinville, Sask.; James [illegible], Medicine [illegible], Alta.; Frank Coles, Moffat, Sask.; J. Tabrum, Eyebrow, Sask.; Samuel Dryden, Estevan, Sask.; James A. Rose, Hargrave, Man.; F. Wraight, Selkirk, Man.; Neil McLean, Okanakan Falls, B.C.; John Abbott, Minto, Man.; D. W. Jones, Roland, Man.; Lieut.-Col. G. A. Campbell, Toronto, Ont.; A. F. Whiteside, Ikeda Bay, B.C.; Capt. Alex. Lord Russell, Port Arthur, Ont.; Lieut.-Col. Jos. Mackay, Fernie, B.C.; E. F. M. Williams, Wapella, Sask.; Hon. Thos. McNutt, Saltcoats, Sask.; John G. McLean, Pilot Mound, Man.; F. F. Saul, Cartwright, Man.; John Ryan, Macleod, Alta.; R. C. Vine, Texada Island, B.C.; A. Baxter, Lee Park, Alta.; E. V. Barker, Cardston, Alta.; Jos. Tierney, Vancouver, B.C.; Major C. F. Forrest, Morden, Man.; Fred Tollett, Estevan, Sask.; John Hicks, Grand Coulee, Sask.; Thos. Green, Twin Lake, Alta.; E. Bee, Pipestone, Man.; R. A. Price, Regina, Sask.; James Dobie, Maple Creek, Sask.; Wm. Stone, Earl Grey, Sask.; D. W. Rawson, Kimball, Alta.; Capt. A. C. LeRoy, Bogard, Sask.; D. S. Anderson, Brandon, Man.; Dr. V. Latimer, Brandon, Man.; F. W. Philpot, Inga, Alta.; W. Crow, Virden, Man.; A. Stewart, Regina, Sask.; G. Haward, Wardner, B.C.; A. H. Scouten, Riding Mountain, Man.; Capt. J. Sutherland, Broadview, Sask.; D. M. Stewart, The Landing, Man.; E. N. Grimes, Elmore, Sask.; John Harrold, Lethbridge, Alta.; Capt. H. A. Machin, Kenora, Ont.; J. O. Ganne, Penticton, B.C.; W. Wells, Strathcona, Alta.; John Mountstephen, Kakabeka Falls, Ont.; and all local offices of all attached units.

All communications regarding the Imperial Veterans' Association should be sent to the Honorary Secretary Headquarters Veterans' Brigade, 606 Builders' Exchange, Winnipeg, Man., enclosing stamp for reply.

THE GASOLINE ENGINE AND THE FARM

(By George Ethelbert Walsh, in Harper's Weekly)

Over a quarter of a million gas-engines are working on our farms. These engines have displaced, it is estimated, at least half a million horses and mules, and reduced the "hired man" problem to an irreducible minimum. All this has been achieved in the past few years.

The substitution of steam for horse-power on our farms was of value only to the big bonanza farms. The small farmer with a few hundred acres to cultivate could not afford the big steam tractors, and even if he could make the initial outlay there were no visible profits in the investment. The gas engine, on the other hand, immediately appealed to the man with fifty or more acres, and it has suddenly become the "poor farmer's" horse and mule.

The gas-engine ranges in size for farming purposes form the small three and five horse-power motor up to the big portable tractor of forty to sixty horsepower. The small ones are used for a great variety of purposes, such as driving churns and cream separators, pumping water for stock, cutting hay and fodder, grinding bones for the chickens, sawing wood, shelling corn, running milking machines, and even operating sewing-machines for the farmers' wives. A single gas-engine of eight to ten horse-power may be seen coupled up to several machines about the barn, and the output is so much greater than by hand or horse power that a great economy is effected.

In parts of the country where mixed farming is combined with dairying, hog raising, and fattening of beef cattle, six to eight horse-power engines are used on a large scale. The engines are used for cutting corn for ensilage, pulping roots, pumping water, grinding feed, and for milking and separation of the cream. A single five horse-power engine on one of these farms will thresh 200 to 250 bushels of wheat a day, and it is then available for any other kind of work.

In Manitoba, Saskatchewan and Alberta hundreds of sixteen to twenty horse-power traction gas-engines are used for harvesting the great wheat crop. The problem in this new Northwest is how to do the threshing with the least number of men. With a crop of 15,000 bushels of wheat to harvest, a farmer up these uses a thirty to thirty-five horse-power engine, which, besides doing the threshing, is capable of handling a good-sized separator fitted with both self-feeder and wind-stacker, and also a high bagger. In the spring the gasoline tractor is used for plowing. The smaller farms, which harvest from 5,000 to 10,000 bushels of grain, are equipped with twelve to twenty horse-power engines. The saving with a gas-engine over a steam outfit is placed at six dollars per day. A steam outfit costs as follows:

Engnieer, per day	$4.00
Fireman, per day	2.50
Man and team hauling water	5.00
Total	$11.50

The cost of operating a gasoline-engine is, on the average farm, about as follows:

20 gallons of gasoline at 25 cents per gallon	$5.00
2 hours of man's time each day at 25 cents	.50
Total	$5.50

One of the points in favor of the gasoline engine on the farm is the fact that it interests the boys. One typical illustration of this comes from Colorado. A sixteen-year-old boy on a ranch near Hugo took the motor of an auto buggy and mounted it on a fourteen-foot combination header and push binder at less than seven dollars' expense. The machine is now working in an 800-acre field. Another seventeen-year-old boy secured a second-hand six horse-power gas-engine, and rigged it up in a wood-shed where it was protected from rain. A line of belts were rigged up to connect it with a churn, a cream separator, a corn sheller, a grindstone, a pump, a sewing-machine, a washing machine, and a hay cutter. Three or four of these machines could be operated at one time or only one or two could be run, as needed. Each machine had a cut-off, so that it could be stopped instantly. The boy found so much pleasure in running the machine that he and one hired man did all the small jobs around the house and barn which formerly kept two extra men busy. The saving to the farmer was not the only advantage gained. The boy himself was saved for the farm. He had found an outlet for his restless spirit, and in doing this he had laid the foundations for a good farmer. The boy with the gasoline-engine on the farm is the pioneer in a new industry which promises to mark a new era in our agriculture.

DIVERSION OF WATER FROM NIAGARA FALLS

THE Burton Act, which limits the amount of water which may be diverted from Niagara Falls to 15,600 cubic feet per second, expires on June 1st. Thereafter the waters of Niagara will be in the hands of the Secretary of War. While the Burton limitation will be removed, there is still a treaty limitation with Great Britain permitting only 20,000 cubic feet of water per second to be diverted by the United States, and an equal amount by Canada. There is now a measure before the House of Representatives which aims to allow the United States to divert permanently the entire 20,000 cubic feet per second, and also aims to place no limit upon the amount of electric power that may be transmitted into that country from Canada. Such a limit was imposed by the Burton bill.

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by Edward Locke

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COME EARLY

The Case of the Spanish Sportsman

Professor Addison was a scientist of European repute. He was also, which interested me more, the father of an exceedingly charming daughter. To see Maud Addison occasionally I feigned an interest in science. Evening after evening, I dropped in at the Professor's house. Evening after evening, I followed him round the greenhouses, watching his curious experiments on the cross-fertilization of flowers. It was all on the chance of the Professor saying, when the light had failed:

''Come in, Mr. Carter; come in, and we will relax our minds over a hand at whist.''

It was worth a couple of hours of technicalities to see Maud Addison's dainty hands dealing the cards, and to be her temporary partner was an agreeable anticipation of the day when I hoped to be her permanent partner.

However, one evening, when the Professor was deeply absorbed in the contemplation of some miserable flower, there was a crash, a breaking of glass, and a cricket-ball just grazed my head.

''Do you know what that is?'' said the Professor excitedly.

''A cricket-ball, sir,'' I replied.

''It's boy—boy—boy!'' cried the indignant scientist. ''Thank heaven I never had a boy! Girls are bad enough—coming into the greenhouses with hats as big as umbrellas, and knocking flower-pots from the shelves—but boys, boys!''

The Professor's tone showed that he considered boys to be utterly loathsome things.

''That ball,'' continued the Professor, '' might have destroyed the results of months of experiment!''

I was more concerned with the fact that it had nearly broken my head, but that aspect of the case did not seem to interest the Professor.

''Let us see if we can catch the rascal,'' I said, eager to get away from botanical technicalities. ''He's sure to be looking over the wall to see where his ball has gone.''

''A highly practical suggestion. I commend you, Mr. Carter.''

I crept cautiously out of the greenhouse, followed by the Professor, and spied not a small boy but a gentleman looking over the garden wall. The stranger was a slim, sallow-complexioned individual, and he bowed gracefully as he addressed me.

''I fear, sir, that I have damaged your property in my devotion to your national game. I regret exceedingly if my ball has spoilt our greenhouse.''

Professor Addison looked curiously at him.

''The damage is trifling, sir. Your enthusiasm for our national sport—even at this time of the year—more than atones for any trivial inconvenience. Here is your ball, sir. I was not aware that our national game had spread to Spain.''

''It has not, sir; but it will. It is what we need, sir—a national sport that will unite the nation. I came over to England to investigate the causes of the greatness of your people. I found that all men were equal on the cricket-field. I see your Prime Minister and the leader of your Opposition sitting side by side at the cricket ground of your wealthy classes—Lord's. It is national unity that we need in Spain, so I chose this the best of your games. I practise it assiduously in the garden of my temporary residence. Already I am so efficient that I can throw the ball over the house-top. When I have mastered that, then I begin the handling of your bat. In time, I shall become a proficient. Yet I deplore that in my efforts to benefit my countrymen I have damaged the property of an Englishman. Permit me, sir, to recompense you.''

''I am already recompensed, sir.''

''In what way, may I ask?''

''By the ingenuity of your idea. May I compliment you upon it, and wish you good evening.''

The Spaniard bowed politely as he returned the Professor's salutation.

''How did you make out that he was a Spaniard?'' I asked, as we walked away.

''You noticed the difficulty he had in pronouncing the letter 'b'? It became almost 'v' as he said it. That and his dark complexion, were enough to settle the question of nationality. Cricket, indeed! Reforming a nation by means of cricket! What an idea.''

''Well, it might be an improvement on bull-fighting,'' I hazarded.

''Not in the least, sir. Whoever heard of a bull-fight being prolonged over three days? Really, this incident has quite broken my train of thought. Perhaps you'll join us at the whist table to-night, Mr. Carter?''

I accepted eagerly, and never in my life did I see the Professor play such an abominable game. As I was in partnership with his daughter, I took no notice of his blunders, but at last he revoked so palpably that I had to mention it. He looked across at me apologetically.

''Excuse me, Mr. Carter,'' he began, ''but I was thinking of something else, and whist, above all things, requires concentration of thought.''

''You are thinking about those awful plants of yours,'' said his wife sharply.

''Not at all, my dear. I was merely trying to remember the name of the Italian politician who said he only dreaded two things—a silent Frenchman and a talkative Spaniard. What a remarkable head that man had, Mr. Carter! Did you notice the curious bulges at the side of the temple. However, let us go on with our game. My dear, you might have the goodness to inform me what are trumps.''

The Professor's daughter chanced to be going away for a few days, and, as my interest in the cross-fertilization of flowers was not overwhelming, it was some time before I called.

When I went in, the Professor exclaimed:

''I have been waiting anxiously to see you, Mr. Carter.''

I trembled lest he should have discovered my attachment to his daughter and have disapproved of it.

''Have you some of those new orchids to show me?'' I asked.

''No; I have had much difficulty in keeping my mind on my work. That Spanish gentleman in the house behind us interests me immensely. His enthusiasm for cricket is stupendous. He is up at daybreak throwing his cricket-balls right over the house from the garden-front to the back. I expect at any moment to find that he has a let a ball slip and destroyed some of my cherished seedlings. Yet that is not what bothers me. I understand that this house behind mine is occupied by a Miss Finch who takes in paying guests. Do you think that you could go there, and, on pretence of securing rooms, extract from her all she knows about this resident of hers?''

I readily agreed to oblige the Professor, and at once went round to see Miss Finch. She was a plump, amiable little body who, at any first word, threw up her hands in astonishment.

''I call it almost a providence,'' she began. ''Here's the Spanish gentleman I've had for three months been and given me a week's rent instead of notice to-day and left this afternoon. I was just sitting down to think of writing an advertisement when I heard your ring.''

''Didn't the rooms suit him? I said casually.

''My boarders are always suited,'' replied Miss Finch, drawing herself up proudly. ''Of course he was comfortable in my house, but he's got to get back in a hurry to Spain, poor fellow. He said it was business.''

''I should think you found it rather awkward having a foreigner,'' I said.

''No,'' returned Mrs. Finch knowingly; ''men are all much alike. They need looking after, but if you treat them well they're no trouble to manage. Of course, Mr. Espartero had his faults. It seemed a pity for a grown man to be spending all his time cricketing. I told him when he first began throwing balls over the house that I should hold him responsible for all breakages, and that I couldn't allow it on washing-days, when the charwoman was going in and out of the back garden. But I'm letting my tongue run away with me. What attendance would you be likely to want?''

She showed me round the house and garden, told me her terms, and I said that I would let her know my decision in a day or two.

''That's all right,'' said Miss Finch. ''Only, mind you let me know. I'm not dependent on my gentlemen boarders, though the money's useful, and I like to have a man in the house in case of burglars.''

I went back to the Professor and told him all that I had learned.

''Then you noticed nothing particular about the house?'' he asked.

''Nothing, except that Miss Finch has had all her pet dogs stuffed and set up as ornaments.''

The Professor could not restrain his impatience.

''Nonsense, sir! I mean, had this lodger of hers left anything behind?''

''Nothing, as far as I could see. Miss Finch told me herself that he had very little luggage. He packed up and went away in an hour this afternoon.''

''And you noticed nothing in the garden?''

''No.''

''Good heavens! what have you eyes in your head for? Go back at once and look at the lawn behind the house.''

''But what excuse can I make to Miss Finch?''

''Oh, ask her anything! Haven't you a grain of imagination?''

I looked over the dividing wall of the two back gardens and saw that in Miss Finch's there was a small shed. An idea came to me at once.

''Well, I might ask her if that shed would do to keep my motor-cycle in.''

I went back to the house and made the request that I might look at the shed. Miss Finch made no demur, gave me the key, and excusing herself on the ground that she was just starting to cook her supper, let me go alone. I went down the garden, glanced casually into the shed, and then walked back across the lawn. I looked at it closely, and saw that there were small round indentations in a good many places; but I could find nothing else. I stayed till I dare stay no longer, and then went back to the Professor.

''Well,'' he said eagerly, ''what about the lawn?''

''He's knocked it about pretty badly with his cricket-balls,'' I said. ''They have marked it deeply in several places, but really, sir, I could find nothing besides.''

''I expected that,'' he said. ''That settles my little problem. He left for Spain this afternoon, you said. I'll go in and get a Continental time-table.''

He rteurned in a few minutes with an envelope in his hand.

''Don't open that for four days,'' he said. ''It contains my solution of this curious problem.''

I was so much more interested in his daughter than in the Professor that I regret to say that I forgot all about the envelope. Four days later I met Maud Addison at my tennis club. I had the chance of escorting her home, and was daring enough enough to propose to her on the way. Happily, I found that she, at any rate, approved of me; but when we reached her home she said demurely, ''I don't know what father will think of it, Frank. Come in with me and we'll break it to mother. If anyone can manage him, she can.''

Mrs. Addison beamed on me when I told her, and was good enough to promise that she would try to make the Professor regard the matter favorably, but just as she was talking to me there came a furious rat-tat at the front door.

''That's father's knock,'' exclaimed Maud.

''Go in the garden, you two,'' said Mrs. Addison, ''whilst I talk to him.''

We had not been in the garden for long when I heard a shout and saw the Professor rush out of the French windows on to the lawn.

''Don't take too much notice of him,'' whispered Maud. ''His bark is worse than his bite. He was just the same when Mildred got engaged.''

I went boldly to meet the Professor.

''I am sorry, sir, if our engagement does not meet with your approval,'' I began, ''but I promise that I shall be a good husband to Maud.''

''Don't worry me about trifles,'' cried the Professor. ''Where's that envelope?''

''What envelope?'' I asked innocently.

The Professor glared at me. ''The envelope I gave you the other day.''

By some lucky chance—had it been otherwise I think the Professor would have cast me off for ever—I had it in my coat pocket.

''Here it is,'' I replied. ''Do you want it?''

''Open it and read it aloud,'' he cried.

I tore it open and read: ''Some distinguished Spaniard, probably in Barcelona, the storm centre, will be assassinated shortly. The assassin will throw bombs upon him over the houses from a neighboring street.''

''Now read that,'' he cried, thrusting an evening paper into my hands.

I read the paragraph he pointed to: ''Reuter's correspondent at Barcelona wires: 'General Neyler, captain-general of Barcelona, was assassinated this morning while passing through the town on his way to the station. Three officers and ten men of his escort were also killed, and the remainder desperately wounded. The assassins, who evidently had the captain-general's passage signalled to them by an accomplice, threw percussion bombs over the houses from a neighboring street, and consequently escaped unmolested.''

''There,'' said the Professor, ''didn't I solve the problem. I knew from the man's curious bulging head that he was a fanatic; it is a characteristic type I guessed, too, when I saw him practising with cricket-balls what his motive was. When I found he had substituted something heavier for a cricket-ball—else why the indentations on the lawn; a cricket-ball leaves only the most trifling mark—then I was certain.

''He had been practising with a ball of metal, so that he could throw the correct weight with accuracy. Yet suppose I had laid my theory before Scotland Yard, would I not have been laughed at? What were you saying to me my dear fellow—that you and Maud were engaged? Ah, that was what my wife was trying to tell me in the house just now. Well, well, I suppose that such things have to be! I hope, my dear fellow, that when you settle down to take things seriously, you will enjoy the greatest happiness of existence.''

''A good wife, I suppose you mean?''

''No, sir; the supreme joy of life is the formation of a correct logical deduction from a limited number of facts.''

SEA WATER A LIQUID FOOD

It has hitherto been supposed that marine animals derive their food from each others' bodies and, in the last analysis, from plants, says Prometheus. A few years ago, however, Puettner discovered that the sea contains dissolved food materials, upon which some marine animals, notably sponges, appear to live exclusively. A given volume of sea water contains in dissolved condition 24,000 times more carbon than it contains in the form of organisms. Puettner proved that one species of sponge, if it were compelled to exist upon ready formed food, could obtain in one hour only 1.2300th of the quantity of carbon which it consumes in that time; and in order to obtain even this small quantity, it would have to fish over twenty times the volume of sea water which would suffice to supply it with all the carbon it requires in the form of dissolved complex carbon compounds. Very interesting in this connection is the observed fact that comparatively small quantities of ready formed food are found in the digestive cavities of the lower marine animals. Hence sea water is, for a great many invertebrate animals, a nutrient fluid from which they absorb food, as the cells of animal tissues absorb food from the bodily fluids, animal parasites from the media in which they live, and all plants from their environment. The sea is an inexhaustible reservoir of food.

MOTORING

A few years ago a comparison of the representative merits of American and foreign cars offered no opportunity for discussion, for the latter were admittedly the superior in every way to our own products in the line. To-day, however, while it can hardly be said that these conditions are reversed, we find the American cars at least holding their own with their foreign competitors, and in many cases demonstrating actual superiority; and so, at the present, a foreign car must be of the very best in order to find a profitable market in this country.

The figures show that not only is the United States making automobiles to supply practically all the users of their own country, but that they are shipping them to foreign countries to the extent of from fifteen to twenty-two million dollars' worth a year. To be sure, the sister republics in this hemisphere provide a large market for this export trade, but the medium priced American car is finding its way even into the very heart of the countries whence came its former competitors.

This home and foreign consumption has increased in face of the fact that the American labor is paid several times what the artisans of Europe receive, and that some of the best materials used in the States is still imported and is subject to a high duty. The rise of the American car in the face of these handicaps until it is now a competitor of the product of the cheaper labor of Europe, is due entirely to the improvement in the shop and factory methods and to the efficient organization that the last decade has brought about.

The European cars are nearly all built by skilled labor, and one might almost say that the quality of the product depends upon the personality that each mechanic puts into his work. Infinite care and detail are bestowed upon each part. As the work is all done by hand by the individual workmen, it is small wonder that, even with the prevailing low wages, the well-built foreign car is expensive at best. These same methods formerly obtained in the construction of the American car, and as the wages received by the workmen here are higher, it can be seen easily how the foreign-built automobile secured a firm foothold in the United States.

To-day, however, the methods are so changed that the first thousand automobiles made in the United States would scarcely recognize the place and manner of their birth. Instead of being built, one at a time, with infinite trouble and pains, they would find themselves manufactured in a single day, in company with thirty or forty others—turned out of automatic machines, as it were; and yet the quality and serviceability of these latter-day motor-cars are far superior to those of their earlier predecessors. It is the same change in method that stimulated the watch industry. To-day, in the modern automobiles factory, we see the cold-chisel and the hammer replaced by the power cutter and planer, the emery grinder doing the work of the file, and a multiple or gang drill performing operations that formerly required the use of a dozen separate drill presses.

Gear-cutting machinery has been well nigh perfected for a number of years, and it was a comparatively easy matter to instal in the progressive automobile factory such devices for the rapid production of all spur and bevel gears for the transmission, motor, and differential as were already in use in other modern shops. In consequence of this, it is probable that the most radical changes have been made in the design of the machines used for boring and grinding the cylinders and for facing off the crank-cases and lining up their bearing centres.

Boring the walls of a rough cylinder casting is but a slow operation at its best, particularly if several cuts are to be taken, and inasmuch as it is not advisable to increase the speed of the tool beyond a certain extent, time can be saved only by working on several castings at once. This is well accomplished in some factories by the use of a battery of double-boring mills, several of which can be attended to by one man. Such a mill may consist of two spindles, parallel to each other, in each of which a boring or cutting tool is placed. These spindles are both driven by the same belt from the overhead shafting, and each bores one of two cylinders placed side by side in a fixture on a turret. Such cylinders may be cast in pairs, or separately, but in either case both can be bored at the same time, and as the speed of the two spindles and the adjustment of the two tools are the same, the pieces will be finished together and the results will be identical.

While this boring operation is going on, another pair of cylinders may be fastened in the proper position to the back of the turret, ready to be swung into place as soon as the first pair is finished. The fixtures on both sides of the turret are so designed that the cylinders may be placed in exactly the proper position with very little trouble on the part of the operator, and he is thus enabled to take care of a battery of several of these mills. Automatic stops are provided on each mill so that the feed of the spindle will cease as soon as the end of the cut has been reached. The great saving in time accomplished by such a system lies in the fact that the spindles need never be idle except for the instant required to swing the turret and bring the new work into position, for the completed cylinders are removed and the third set secured in place while the boring is in progress on the second pair. The cylinders used in the high-powered cars are very heavy and unwieldy, particularly if they are cast in pairs, and in order to facilitate the handling of such parts, some of the large factories are equipped with compressed air lifts by means of which the work may be raised from the floor and carried to the various machines.

Nearly all cylinders for automobiles are now ground before installation in the completed motor, an operation that doubtless adds much to the efficiency of the modern car. Although grinding merely removes the tool marks left from the boring mill, and makes absolutely smooth and nearly glazed the surface on the interior of the cylinder, it would be a long and expensive process, were it not for the almost general use of a special grinding machine. This machine consists of a horizontal spindle set in an adjustable eccentric bearing with an automatic, longitudinal feed at its end. An emery wheel is secured at the end of the spindle, and as this shaft is revolved rapidly on its own axis, its eccentric bearing is turned more slowly in the opposite direction, giving a circular sweep to the emery wheel. The bearing is so set that the sweep corresponds in diameter with the bore of the cylinder to be ground, and as the operation progresses, the emery wheel is fed into the casting. It is seldom that more than a few thousandths of an inch are desired to be ground off from the walls of the cylinder, and consequently two or three repetitions of this operation are generally sufficient and a battery of these machines can easily take care of the product from several times their number of boring mills. Most of these grinders are equipped with suction air pipes that serve to remove the emery and iron dust as it is produced in the cylinder.

The crank-cases of the majority of automobile motors of to-day are of aluminium, and as this is a metal that can be worked at a comparatively high speed, the many machine operations required by the crank-cases are performed easily and quickly. As the crank-case is also the base of the motor on which the cylinders are secured, its upper surface must be very smooth in order to help form an oil-tight joint. Hence practically the entire upper surface, as well as parts of each end, must be faced off, an operation which, if performed in the ordinary planer or shaper, would be exceedingly slow. By means of a vertical mill and a disc to which are attached several cutting tools, the facing off of the entire surface may be done with great dispatch. This tool is known as a ''cathead,'' and as it revolves in a horizontal plane the bed to which the crank-case is attached is fed under it, thus facing off a surface with each cut that is as wide as the diameter of the disc, or cathead. The ends of the crank-case may be faced off in the same manner, and if it is desired to cut a flange for the forward train of gears, the separate tools of the cathead may be adjusted accordingly.

The multiplicity of operations that may be performed on a single piece of modern shop machinery is best exemplified by the treatment of the bearings for the different shafts that are located in the crank-case. Many motors are designed with two cam shafts, and these, with a three or five-bearing crank shaft, may make necessary as many as fifteen bearings in a single crank-case. Many of these are of different sizes, and yet machines are in use which will cut or bore all of these at once. In addition to this, some of these machines are equipped with a vertical spindle and cathead that will face off the upper side of the crank-case at the same time. As the various bearings of the crank-case will be located on three parallel lines corresponding to the positions that the crank shaft and cam shafts will occupy when assembled, only three spindles are necessary for this bearing-cutting machine. Each spindle is provided throughout its length with slots in which adjustable cutting tools may be placed, and by setting these at the required length, the proper cut for each bearing will be made when the spindles are removed and the bed to which the crank-case is secured is moved to form the feed.

One of the most useful tools brought to the aid of the automobile manufacturer, and one that enables him to turn out a great amount of high-class work in a short time, is the multiple, or gang drill. The individual spindles of such a machine are connected to the power shaft by a pair of universal joints, and by means of these any drill may be moved any place within a limited radius. When moved to the proper position the drill may be set and locked, and by obtaining the right combination of positions of the different drills, a set of several holes may be drilled in a surface at the same time. Absolute accuracy so far as the proper location of these holes is concerned is obtained by means of a jig. By the use of one such machine, properly set, one automobile factory is enabled to drill all four holes in the bearing caps of two connecting rods at the same time with scarcely any more trouble than would be required to bore a single hole. The same type of machine, when set for different work, can drill all the holes of different sizes necessary in the upper surface of the crank-case; and here, too, the use of a jig makes the nearly automatic results far more accurate than could ever be obtained by trusting to a workman's eye and hand.

The advantage of the gang drill is particularly noticeable when used on a motor cast en bloc; that is, with all four cylinders cast in one piece. In one factory in which such motors are made, a double multiple drill is used with the spindles so set that every hole required in each cylinder may be drilled in two castings at once. This really means, then, that eight cylinders can receive their full quota of drilled holes simultaneously.

But all this labor-saving machinery will be of little avail unless the various tools are so aranged that a minimum amount of handling will be required for the work. With this arrangement in view, the machine tools are placed in a relation corresponding to the progress of the work on each part, so that, as each piece is finished on one machine, it may be carried to the next adjacent machine for the succeeding operation. For example, near the boring mills will be found the drill presses for the cylinders, while beyond these will probably be placed in order the valve-pocket reamers, the shapers for facing off the bottom of the casting, and the grinding machines. The crank-cases follow the same general plan, and are so routed that each piece need only be lifted from the planer to the reamer or the duplex boring mill, and from this to the gang drills.

This is all, of course, a matter of highly specialized workmanship, and each man will attend only to his own machine or battery. On this account, some pieces may pass through the hands of at least a dozen men, and when the amount of work required on each of the thousand and one separate parts of a motor car is considered, it will be realized that a great number of skilled artisans of various classes are required for the manufacture of a modern automobile.

The extent to which quantity production has found its way into even the smallest operation of the construction of a motor is well exemplified in the factory of one of the leading automobile companies of the United States. The valves of every motor must be ground before it is ready to run, and while this is not a difficult or long task, the factory has improvised a machine that will grind four valves of a motor at the same time and with no more attention from the operator than though he were confining himself to one valve. This valve grinder is in reality a converted quadruple drill press, having the spindles driven by bevel gears connected to a common power shaft. The spindles are set at the proper distances apart to correspond to the valves in the pair of double-cast cylinders, and by a simple tripping device the pressure on the valves is released at frequent intervals to allow new grinding material to be inserted and to give the same effect as though the operations were being done in the most efficient manner by hand. This same machine can be used for reaming out the valve-pockets of four cylinders at once by substituting reamers in the chucks for the flat-ended tools that fit in the valve slots.

All of the machines and tools so far described are for the rapid manufacture of parts in quantities, but in order to obtain the greatest efficiency from a plant, these machines must be supplemented by a system that provides for the equally rapid disposal of the parts so completed. In other words, the product of the machines must not be allowed to accumulate to such an extent that the tools will be forced to remain idle for any length of time. In an automobile plant, the only way to dispose of these pieces as they are manufactured is to assemble them into the various parts that go to make up the completed motor-car, and this means an assembling system and organization as perfect and efficient as that required in the machine shop proper. Such a system has been carried to so high a state of efficiency in one of the large factories that thirty-five cars have been completely assembled in one day by a force of thirty men—and that is quick work considering the fact that those cars grew in a single day from the bins in which the smallest parts are kept to the completed machine, ready to race around the testing track.

The keynote to this wonderful system is ''teamwork,'' and by so grouping the men that three can work on two cars at once, each knows exactly what he has to do, and is able to keep out of the way of the others. Each team of three men continues to work on the two cars until both are entirely completed, and they then devote their energies to the next pair. None of the men needs to step more than three paces from the frames that form the nucleus on which each car is erected, for the proper number of parts for the two machines are supplied by the stock-room attendants, who wheel them in as required in small trucks divided into compartments to accommodate the pieces of various sizes. Differential pulleys that run on an overhead track passing in front of each frame allow heavy parts, such as motors, rear axles, and transmissions to be set in place easily, and as all parts are practically interchangeable when they leave the machine shop, but very little fitting is required. This is in striking contrast to the old days of the ''built-up'' cars, when each part had to receive individual attention and had to be fitted to its own special place. In the early days of automobiling there were almost as many types and varieties of chassis and bodies as there were users of the cars. One shop might turn out a dozen varieties of chassis, each interchangeable with as many more different kinds of bodies, and the result was that no maker's product could be termed strictly uniform. The production of parts by machine tools, however, has brought about a striking change, and to-day we find the majority of manufacturers confining themselves to two, or at the most three, sizes of chassis. In some instances the entire plant is devoted to the manufacture of but a single type of chassis, and when this is done, each workman and every machine can concentrate their efforts on the parts of this one product.

Body building is generally considered to be slightly distinct from automobile manufacturing, and although many plants have departments in which the work is done, it is usually classed as carriage maker's art. This fact, however, enables factories that make but one type of chassis to give their customers the choice of several styles of bodies, and in consequence the ordinary observer might consider that this plant was turning out several varieties of completed cars, whereas in reality its product would be confined to one design of bona-fide automobile.

Indications now point to the fact that, in the near future, the manufacture of pleasure cars will be confined *to two classes of plants—those for the construction of high-powered cars, and the others devoting their energies to the product of the light, low-priced machine.* But, in addition, there are the encouraging present and tremendous future possibilities open to the commercial car, and it is probable that the same distinctions as those mentioned above will be made in regard to the manufacture of this class of motor vehicles. As machines and tools are introduced that are capable of performing the most efficient work on parts of a certain design or size, the variety of styles and models of cars that can be constructed economically may be said to decrease with the increase of duplicate parts production.

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Editor and Publisher

Friday, May 12th 1911

A very successful Dance was given at the Opera House, on Friday evening last. A "jolly" crowd was present and a good time had by all present.

Mr. and Mrs. W. B. Nalder were at Lethbridge on Saturday last.

Mr. and Mrs. Wilson McCarty who have been in the East for the past few months, where Mr. McCarty has been studing Law, returned home on Saturday last.

A large number of Stake and local workers attended the Union Meeting at the Knight Academy, on Sunday last.

There is more green grass to be seen around town now, than we had all last summer. This speaks well for a good season, in hay especially.

The Junior Orchestra played at the Children's dance on Monday afternoon, this is their first dance engagement, and if they keep up their good work, the Opera House Orchestra will be out of a job, as the boys did excellent work.

A surveying party of the G. T. P. R. Co., are surveying lines both east and west of town.
They are very slow of speach however, and will not give any information as to their purpose in running these lines, but to all appearances the railroad is going to run on one of these lines. Let us hope so at least.

The Security Investment Co., purchased a 40 horse power Turing Car, last week.

Three inches of the "Beautiful" fell on Thursday night last.

Mr. Chas, McCarty transplanted a row of trees to the sidewalk last week. So that the Academy students might keep out of the sun's hot rays, in going to and from school.

A number of men are repairing the telephone lines around town preparatory to establishing an "all night service?"

Whether you talk with your neighbor or stranger at home or abroad, riding or walking always have a good word for your town.
Speak of the beautiful homes, the nice streets, the excellency of the surrounding country and the intelligence of the surrounding country and the intelligence and enterprise of your neighbors. Stand by your town through thick and thin as you would stand by your best friend in time of distress and you will find,it prosperous and thriving as never before.

Mr. B. S. Young and his daughter Etblyn returned from Salt Lake City, Utah, on Tuesday night's train.

Messers. Geo. H. Budd, S. F. Kimball and Mr. and Mrs. Wilson McCarty drove to Lethbridge in the Security Investment's new Auto, on Tuesday morning.

Talk about a paper having a public duty to perform, and an editor having to work for his principles, is cheap when others stand back and extend a lukewarm neutrality. The result is the editor may starve while laboring for his principles and the cause of right and justic, which they admire but do not support.

One of the pleasing features in "The Climax" is the rendition of the beatiful song, "The song of the Soul" which occurs in the last act. This number will make the singer and composer famous and few dry eyes are rarely seen at the close of the song. As one critic says, "Capacity houses will be given every production which ranks with "The Climax" and we are glad to spend are glad to spend our money when the return comes back in such bountiful measure.

Whenever the country newspapers find foreigners invading the field of the home merchants with goods and merchandise and selling them to farmers, they are asked to arise and and whack the intruders and advise the farmers to buy their goods from the home merchants. And when foreign printing houses send their representatives among the merchants and business men, many of these same merchants give them their orders and get inferior work for their money. That's reciprocity.

We have received personal and unquestionable information from the East that "The Climax" has made the greatest hit of any comedy seen in years and has been playing to a enormous business. Since its intial performance in New York at Webber's Theatre the author and management have been adding to it and changing situations, until at present it stands without an equal in its line.

On Thursday last while the small boys of one of our prominent citizens were driving their cows from the pasture, a gentleman (?) drove up and loaded a newly born calf into his rig and drove away. Of course he thought it was one of his calves that had strayed from its mother because it was so young (?) and the mother did not claim it(?) neither did the boys who were driving it home(?).

If we were living in this vicinity 75 years ago such an occurance would not have startled us, but living in this age, and in this community it makes one stare, and wonder what the world is coming to.

The gentleman(?) after being warned, has decided to return the calf, as he found on arriving home that his calf was safely secured in his barn.

A newspaper,if it has any brains, conscience and muscle back of it, must continually decide between doing its duty and injuring his pocket. In any position but that of an editor, the public is able to separate the individual home from the collective citizen. But if an editor does not please them its at his pocket they aim. Thus it is the newspapers learn who their friends are. The man who reads and admires the newspaper all the year yet gives his business to some other concern, whose principles or the actions of the editor he detests is not a friend to the former newspaper. Admiration alone will not run a newspaper. There are too many men who expect an editor to slave in defence of their pet notions and hobbies, advocates their views against the strongest opposition and coolly withold the business support by which alone a country newspaper can live.

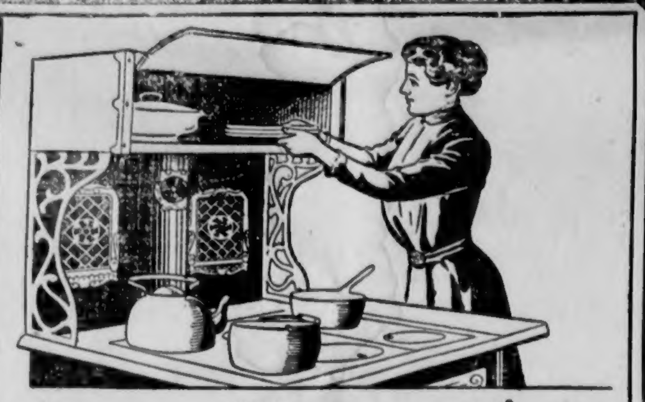
BORN:—On Sunday April 30th, to the wife of Mr. T. J. Davies, a son

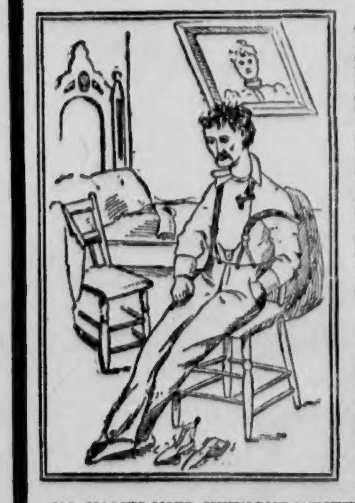
Dame Rumor has it, that the local merchants are beginning June 1st, to have a strictly cash business. This is good news to us, altho there are some who will have much to say about this move.

There are some of our citizens who(when they do have a little cash) send it to the mail order houses, who have the use of the money some 10 or twelve days before the goods are received.
We dare say that our local merchants would do the same.

Lend them your cash for 10 days and they will give you a much better price than they will on the present business system. As it is now, some have been buying goods and running accounts for years, using the merchants money to run their farms and keep their families, while the merchant has to borrow money and pay heavy interest.

Join with the merchant, and do not "kick" at the change (to much) as it will be money in your pocket in the long run, and then you will be able to pay your subscription.





The Small Motor on The Farm

A hundred years ago the production of the necessaries of life kept four families out of five on the farm, and those four barely supported the fifth by their superfluous products. Choice of occupations was necessarily limited. Since the invention of the steam engine, the manufacture of countless necessities has been transferred from farm to factory. The steam engine has made possible the wonderful development of our land and water transportation system. It has fostered the growth of our great centres of population, increasing the opportunities for employment away from the farm. The transfer of manufacturing to the city and the development of wonderfully efficient horse-drawn field machinery for crop production released millions of workers from the isolated life of the country. In consequence we have had for a generation the problem of making farm life more attractive.

It has remained for the engineer to accomplish what the agriculturist failed to do, and, naturally enough, by the same methods by which he made life away from the farm attractive. He is establishing easy means of communication and transport, devising conveniences for the farm home, and, most of all, he is introducing mechanical power to take from human shoulders the monotonous daily tasks that cannot be shifted to those of the animal. The agricultural world is awakening to the stunning fact that, after all, the farm is an engineering proposition. Production, to be efficient, must be organized on the same lines as in other great industries. The small motor is only the beginning of a wonderful development in agricultural engineering, and has a greater significance than the importance of present installations would indicate. It is significant of the tendency to intensify agriculture by applying more power to each acre and carrying processes farther on the farm. It means the elimination of drudgery, the saving of unnecessary human labor, which is conservation of the highest type. It means the opportunity for exercise of mental rather than physical strength, the development of broader intelligence on the part of our farmers, with direct benefit to those who must depend upon the farmer's efficiency for their daily bread.

Electric machinery has gone through wonderful development, and competition in commercial fields has at last brought the farm to the manufacturer's attention as an unworked source of trade. One of the papers at a recent meeting of the American Society of Agricultural Engineers was read by the representative of a large electrical concern, the title being, "The Promise of an Electrical Agriculture." The resulting discussion developed the fact that both engine and electrical manufacturers are looking to the farm for their greatest volume of business in the near future.

Without dwelling further on the economic phases of the question, we may pass to a consideration of some of the many adaptations of internal combustion engines and electrical motors to farm purposes. The discussion will be confined to those operations involving the saving of hand labor, the use of mechanical power in field work being a vast subject in itself.

The uses of the gasoline or kerosene engine on the farm are almost without number, but only the exceptional farmer has established a complete power plant. Pumping water by hand has long been regarded as impracticable, and in regions of unbroken topography the windmill has been generall yunreliable. The latter's frequent failure in the summer, the time of greatest consumption, has led to a surprising shift to the small engine for pumping purposes.

In general the needs for water are for fire protection, sanitation, irrigation and consumption by household and stock. By the aid of the engine the farmer may have a better water supply than his city relatives. For instance, an elevated storage tank will give gravity pressure for faucets or hydrants all over the farmstead, and the newer pneumatic tank, underground, gives both pressure and insurance against freezing. In the latter the engine may be used to pump either air or water into the tank up to a pressure of from 15 to 75 pounds per square inch. It is now possible, by means of an engine, a compressed air tank and a submerged pump, to have abundant water direct from the well by simply turning a cock in the kitchen. The pump, located at least six feet under the water, may be started by turning the faucet, the air supplying power for operating the pump. A surprisingly large percentage of farm houses are being equipped with modern sanitary conveniences which contribute to the health and comfort of the family.

The engine has solved the problem of irrigation in many square miles of semi-arid territory where large projects are not possible or have been delayed. As a rule the engines used are of larger size than those used for general farm purposes, but in numberless instances the engines of from three to ten horse-power has proves the salvation of the farmer by supplying water for at least a small field.

Water can often be found at a shallow depth in dry runs or by boring. A five horse-power engine will raise 500 gallons per minute from a depth of twenty feet. Even in the favored corn belt and the East, the engine is being called on to keep crops forging ahead through the customary summer drouth.

Too often the only use of the small engine is for pumping water, or grinding feed, or some other one task. In contrast the writer has in mind a two-story power house on a side hill, visited over three years ago. The engine and pump are in the basement. Overhead is a line shaft, to which are attached at will the cream separator and churn, the washing machine (the boys do the washing and like it, because there is some inspiration in the chug and fuss of the engine), the corn sheller, fanning mill, feed grinder and grindstone. To all intents and purposes the building is a small industrial plant. There the farm office is located, the farm business transacted, the bulk of the farm stores kept, and many of the important processes of the farm carried on. All is system like that of the factory. There is activity without drudgery, the condition in any occupation which begets enthusiastic service.

Out in the dairy barn one clean, well-paid, trained dairy assistant now does the work of two slovenly farm hands openly rebellious at the tiresome job of milking. All that the farmer saves in money, perhaps, is the keep of one man, but in freedim from labor troubles and in general improvement of dairy conditions he gains in reputation and satisfaction of mind. The vacuum milking machine is responsible, with a gasoline engine off at the dairy house energetically minding its business of running the vacuum pump and the cream separator. Ten to fifteen cows per man per hour is the new standard of capacity, with far less work and dirt. The vacuum cleaning principle is applied to the cows by a slight addtion to the equipment. All the dirt, loose hair and other foreign matter can be drawn off into a dust collector and removed. By the ordinary process of currying and brushing, these sources of contamination are stirred up to fly about the stable and settle upon the utensils. In dairies of fifty cows or less an engine of one and one-half horse power is sufficiently powerful to run the four to six milkers usually attached and to handle other dairy machinery besides.

The livestock is rid of its surplus of old hair neatly and rapidl ythrough the agency of a power clipping machine and a very small engine. The engine may assist in spraying the cattle for parasites, whitewashing and spraying the interior of the barn as a preventive measure. Spraying now extends to the orchard also, where insect and fungus enemies are successfully combated.

Filling the silo has rather grown beyond the limits of hand work, though it tsarted in the same class with the work of chopping roots, corn, grasses, etc., by hand. All this work, heavy or light, may now be done by the gasoline engine, and the number of silos has increased in thirty years from less than one hundred to many thousands. One of the accompanying illustrations shows an engine of about twelve or fifteen brake horse-power handling close to seventy-five tons of corn fodder per day on ten to twelce gallons of gasoline.

The internal combustion engine for such work must have an excess over the average power requirements, as the load is irregular and the speed must be kept up in order to obtain efficient results from the ensilage cutter. On this account a heavy fly-wheel is added to equalize the motion of the engine. Again, some manufacturers, following the lead of the builders of large gas engines for heavy-duty, are adopting the volume, or throttling, governor in place of the hit-and-miss type. In the latter the explosions are occasionally "cut out" by automatic action of the governor when the speed increases above the normal, to be resumed again when the absence of power impulses causes the speed to drop below normal. The throttling governor admits a charge for each cycle, proportioning it each time to the needs of the load. It is, therefore, slightly less economical on light loads than the hit-and-miss type, but for th eheavy, irregular work of shredding corn, filling the silo, sawing wood, etc., it can be depended on to furnish steadier power.

"Bucking wood" no longer has its terrors for the farm boy. If the farm cannot acord the investment in a saw to go with the gasoline engine, there is very apt to be a neighborhood saw. Wood is not a perishable product, however, and the farmers are often content to wait until the owner of a large outfit puts in an appearance and does the work on a custom basis.

One of the most exhausting chores in connection with the harvesting of the corn crop is shoveling off the load after a day of ten or twelve hours in the field. Now a two-horse-power gasoline engine, attached to a portable elevator, will empty a thirty-bushel load of ear corn into a car, corn crib or granary in from three to six minutes. The same is true to some extent of the small grain crops. Quite often both elevator and engine are mounted on the same truck, and in connection with the large threshing outfits this combination saves labor that is hard to get just at that time. The wagon is driven into position, the front wheels elevated and the rear end gate removed. The grain falls into the hopper, is elevated by an endless conveyor and delivered by a flexible spouts at heights practically impossible by hand. The engine has, therefore, made it possible to build granaries and corn cribs higher, at a considerable saving in initial expense per unit of storage space.

On farms where heavy machinery, portable buildings, etc., have to be moved frequently from place to place, the portable gasoline engine equipped with a winch and cable is often indispensable. A five-horse-power engine may occasionally be seen putting a fifteen-ton tractor into a space on a storage floor which would not withstand the combination of weight and vibration produced by running the tractor under its own power.

It has been conclusively demonstrated that the horse is a more flexible traction power unit than the gasoline engine. He may be coupled up in teams of varying size, and in a pinch can pull to many times his normal capacity. At the same time, for driving mechanism of fairly constant resistance, the engine has a great advantage over the horse in endurance. This is further emphasized by the loss entailed in transforming the linear motion of the animal's forward progress into the rotary motion of the machine. While a school of engineers in France has been arguing that the ideal farm machine should use horses for propelling it and the engine for performing its effective work, Yankee ingenuity has perfected the combination. From mounting a small stationary engine upon the frame of a grain binder, which was done repeatedly by inventive farmers before manufacturers grasped the possibility, we have now come to an engine mounted on wheels and connected by a shaft and universal joint to the driving shaft of the harvester. This outfit goes merrily up hill and down dale with two horses where four of five were formerly employed. It is especially adaptable to cutting rice or grain on soft ground where the traction wheel of the binder could not grip the surface firmly enough to transmit the required power.

To the average farmer electricity is a mysterious agent, to be gingerly dealt with. Up to date the widest use of electricity on the farm is for lighting and for the light tasks about the house. Current for general power uses has usually proved more costly than power derived from the gasoline engine, and the kerosene engine has even further increased the handicap. Moreover, the engine, as a self-contained and easily portable unit, is much more convenient for use at different points. In isolated cases, however, a small stream has been harnessed, and even at a considerable cost for electrical equipment, been made to furnish cheaper and more convenient power than the engine.

Improvement in the storage battery has widened the use of gasoline-electric systems. A two-horse-power engine will furnish a horse-power hour for 0.15 gallon or gasoline on a full load and on 0.2 gallon at half load. As many tasks require less than full load, the storage battery has been made to economize by taking up the surplus power. On the average farm it is seldom necessary to run the engine simply to charge the battery, hence the lights may be said to cost little or notaing outside of the cost of installation and the periodical restoration of the battery electrodes. The storage battery is a great convenience. It is a necessity with the hit-and-miss governed engine if a clear, steady light is to be had. Some types of engines with throttling governor control have proved very satisfactory when coupled direct to generators. This connection requires, of course, that the engine be run as long as lights are required, and unless some such work as pumping necessitates running the engine at night, the outfit would probably be useful only on large farms where a number of buildings are to be lighted.

Low voltage systems are commonly offered to the farmer on account of safety, simplicity and low operating cost. The improvement of the low voltage tungsten lamps, consuming about one-third the current required to operate the ordinary carbon filament lamp, has made it possible to reduce the size and cost of installations, especially in the matter of storage batteries. The fifteen-light plant is probably the most popular, as more than that number are seldom burned at one time. With this outfit it is possible to wire for twenty or thirty lights, and burn the entire number by running the engine and dynamos and taking current from the battery at the same time. The fifteen-light outfit requires about one-third horse-power, but less than a two-horse-power engine is seldom installed. The total cost of engine, generator, storage battery, switchboard, wiring, fixtures and lamps, for a fifteen-light, thirteen-volt outfit is around $400. The light will cost in the neighborhood of one one-hundredth of a cent per candle-power hour. For installations covering considerable area it is advisable to use a higher voltage, i.e., twenty-five or thirty.

With the development of interurban railways and long-distance transmission lines it is frequently possible to obtain current from the central station at lower cost than from individual plants. Communities are to be found where the use of electricity for light and power is practically universal, and community central stations are developing in the same manner as did farmers' telephone lines a decade ago. The installation of low voltage apparatus for individual plants requires radcial change in equipment when central station power is finally obtained.

The small electric motor is especially convenient about the farm house, attached to a fan, a flat iron, a churn or a washing machine, for the housewife has but to turn a switch to secure relief from heat and weariness. The electric range and chafing dish can hardly be said to be in general use, but the vacuum cleaner is coming into its own. For $100 the mistress of the household is equipped to clean carpets, floors, upholstering, drapery, etc., by suction at a cost of three cents per hour. The blowing attachment chases dust from inaccessible places. The outfit may be used even for the lady's massage and drying her hair. A motor of one-sixth horsepower furnishes power for all.

A supply of soft water under pressure, independent of the farm supply, can readily be obtained from a cistern, a pneumatic tank, a rotary pump and a motor of one-fourth horse-power. Convenience rather than cheapness has been the means of popularizing the electric motor, and it is only natural that it should appear oftener in the home than in the producing end of the farm.

A friend of the writer's even applied electricity to the farm fence. He drove 2-inch by 2-inch sticks about four rods apart surrounding a pasture field and strung two No. 15 wires thereon, properly insulated. As a starter he connected up a tiny dynamo, driven by water power, with his fence wires. By carefully introducing the various animals to the fence before turning them into the pasture, he educated several to give it a wide berth. The others, however, showed a supreme disregard for the fence, and after the most carefully educated mule, in a panic, took out several panels the inventor quit in disgust.

This discussion has hardly covered all the farm uses of the small internal combustion engine and the electric motor. Enough has been said, however, to justify the statement that one of the greatest present needs of the farm is a comprehensive inquiry into the subject of power installations. These motors are working revolutionary changes in the social and economic status of the farm laborer. But there are no state or national publications on farm power questions to compare with the concise, scientific, helpful series on every other topic.

The writer has long advocated the need of a branch devoted to agricultural engineering in the United States Department of Agriculture. On account of the breadth of the subject the State colleges do not as a rule have the necessary resources to investigate all phases of agricultural engineering, and under the present organization the subject of farm power can receive but little attention. The interests of manufacturer and purchaser are identical. It is gratifying to note that the National Gas and Gasoline Engine Trades association, representing the makers of internal combustion engines and accessories, has joined hands with the American Society of Agricultural Engineers, representing the college men and farm machinery manufacturers, to urge upon Congress the organization of a Bureau of Agricultural Engineering at Washington to cope with the situation which is so rapidly assuming importnace.

CANADA'S NEXT GOVERNOR-GENERAL

The Marquis of Salisbury once described the Duke of Connaught, Canada's next Governor-General, as "the statesman of Queen Victoria's family," and he is certainly justifying this description. Hitherto his military duties have practically monopolized his attention, so that he has not really had the time to develop this other side of his character. Though, as he has himself recently told us, he is "still a soldier to his heart's core," his active connection with the Service has come to an end, and for the future he will devote himself almost exclusively to diplomatic and administrative work.

He is, of course, no stranger to the Dominion, since he wears among his many medals that of the Red River campaign. It may be stated at once that his position will be precisely the same as that of any other Governor-General. When the negotiations for his appointment were in progress it was urged that his proximity to the throne might make his position at times rather a difficult one. The Duke was, however, emphatic upon this point; he desired no special State, favor or privileges, and was content to be as much the servant of the Government as any Peer they might have selected.

Canada will find her new Governor-General possessed of a very charming personality. He is unaffected to a degree, and has a manner with him that at once puts at his ease everyone with whom he is brought into contact. A few years ago, when he was on manoeuvres in Wiltshire, he and his staff unexpectedly arrived in a little country town and, dismounting at the local inn, ordered some lunch. While the meal was being served, the Duke sent an aide-de-camp out to order some wine. The landlord promised to send it in, and added, "I suppose, by the way, that the old gent is all right for the money?" The young officer laughed, and said, "Well, seeing that he is the Duke of Connaught, the brother of King Edward, I think you may rest assured that your bill will be paid." "Oh, lor'!" was the startled comment of the landlord, "and here I was carefully checking all he had ordered!"

Upon another occasion, also during the autumn manoeuvres, the motor car containing His Royal Highness broke down in a country lane and refused to move. Another General drove up and stopped to examine the damage. "Here is a nice state of things, S——," remarked the Duke. "What would you do, if you were me?" "I should curse the thing, and let me drive you on," was the other's reply. "Then —— the car!" instantly responded the Duke, with much emphasis; "and now make room for me!"

His home at Bagshot Park, within easy reach of both Windsor and Aldershot, has seen but little of the Duke in recent years, but it is one of the most charming country houses to be found. When he was staying there a few years ago, he had invited a very old friend to dine with him one evening, and the latter obtained permission to bring his brother, to whom the Duke was quite a stranger. It was dusk when they arrived, and—being summer time—His Royal Highness was enjoying an ante-dinner cigar in front of the house when the car containing his guests drove up. He at once stepped forward to greet them. The stranger, however, mistook him for the butler, and handed him a pile of rugs, saying: "Just take these into the house for me, will you?" "Certainly," was the Duke's laughing reply; "I will carry you in, too, if you like to give me an extra sixpence."

He is an ideal host, and Ottawa will find in him and the Duchess excellent leaders. He greatly enjoys entertaining and being entertained. As a rule, he dispenses with much of the pomp and ceremony that is supposed to surround his dignified position. Perhaps one of the most appreciated compliments he ever received was once when a young soldier companion of his son—Prince Arthur—was leaving Bagshot Park after a very jolly week-end. "Good-bye. I hope you have enjoyed yourself," remarked His Royal Highness, as his guest prepared to depart. "Enjoyed myself!" echoed the youngster; "why, dash it, sir, I quite forgot at times that I was actually staying with Royalty!"

He still retains that great love for big game shooting that he has always possessed, and he owns a wonderful collection of heads, horns and skins that have fallen to his rifle. For the most part, these came from India and East and South Africa, but he will proceed to add to this very largely as soon as he gets comfortably settled in the Dominion. As a shot he runs King George himself pretty close, and uncle and nephew have had many a friendly battle together as to who could shoot the most game in a day. Fishing, too, was a great recreation of his in his younger days, though he has not done much of it of late years. Probably, however, he will find the prolific rivers of his new home too attractive to resist.

Though he is now in his sixty-first year, His Royal Highness is as energetic as ever he was, and the amount of fatigue he can stand is really remarkable. When he was staying with the late King at Sandringham a year or two ago, several of the men of the party had a rather late sitting at the card-tables, and did not retire until the early hours. One of the party rose at seven the following morning, and was attracted into the beautiful gardens surrounding the house. He had not gone far when to his surprise he came upon the Duke smoking a cigarette and playing with a couple of dogs. He expressed his astonishment at seeing his Royal Highness about so early. "Oh, I have been out here for an hour or so," was the smiling reply. "The morning was far too good to waste in bed."

His Royal Highness is looking forward with the greatest eagerness to his forthcoming sojourn in Canada, and will set to work so soon as he arrives there to make himself acquainted with the details of all the questions that affect the Dominion and its future. And those who know him best are aware that he will be as accessible to the humblest of his Royal nephew's Canadian subjects as to the highest, while every effort that has for its object the development of Canada and its resources will find in him a very warm supporter.

DYNAMITE ON THE FARM

Dynamite has been employed for some years in clearing new land of stumps, boulders, rocks and standing trees. The redwood, fir and pine stumps of the Pacific Coast are blasted with low grade, slow acting dynamites. The amount required depends on the size of the stump, the kind of soil in which it stands and the nature of the roots, and generally ranges from ten pounds to five hundred pounds. Sixty per cent. quick acting dynamite is necessary for cypress stumps in swamps, while thirty per cent. to forty per cent. slow acting dynamite usually does best with oak, pine, elm, hickory, chestnut and the general run of stumps.

Almost all vegetation is, of course, directly influenced by the depth, moisture condition and ingredients of the fertile surface soil. Under the surface soil at a greater or less depth and in varying thickness is found the subsoil, which often cannot be penetrated by moisture or plant roots, and which at best yields but little plant food in its compact state. When the subsoil is quite impervious and underlies low ground, swamps or ponds exist above it. If such subsoil occurs under perfectly flat and level ground, the surface is generally marshy. Under rolling land, compact subsoil is not a serious restriction to plant growth, provided the alluvial surface soil be deep. If it be thin or shallow, the land will not retain sufficient moisture to supply the plants through dry weather. Again, thin surface soil is quickly eroded from hilly land. In some places where the surface soil on rolling land is thin, efforts have been made to retain it by throwing up low ridges or dikes to check the wash of heavy rains.

The only satisfactory method yet devised of upheaving and disrupting subsoil is to blast it with dynamite. Swamps are drained by drilling several holes in the deepest part down through the impervious subsoil and exploding in the bottom of these holes from three to fifteen pounds of 30 per cent. or 40 per cent. dynamite having good water-resisting properties, semi-gelatin or gelatin dynamite being best for this work. When properly done this blasting shatters the subsoil so that it affords permanent drainage and so that the swamps do not form again.

Marsh land is recovered by ditching. The ditches and drains are excavated by exploding charges of approximately a half pound of 50 to 60 per cent. quick acting dynamite in holes put down in a line and spaced approximately two feet apart. Only the middle charge in the row is primed, and the explosion of this charge causes the entire row to explode. In this way a ditch three feet deep, five wide and of any desired length can be excavated without any shoveling. Ditches fifteen feet wide are excavated by exploding the dynamite in three parallel rows of holes.

Subsoil under land is broken up with quarter-pound to half-pound charges of 25 per cent. to 30 per cent. slow acting dynamite exploded in holes sunk from two to four feet at regular intervals. The depth and spacing of the holes and the size of the charge depend on the thickness and condition of the subsoil. Experiments in subsoil four feet thick under a foot of surface soil have been made by sinking pits midway between holes spaces at various distances. These experiments have shown that a half pound 25 per cent. slow acting dynamite exploded in the holes driven down to six inches above the bottom of the clay subsoil will properly break and crack the subsoil to a distance of eight or ten feet. The proper spacing for the holes in this ground is therefore fifteen to twenty feet. Holes fifteen feet apart average about one hundred and ninety-four to the acre, and holes twenty feet apart average about one hundred and eight to the acre. The cost of labor and explosives to blast an acre of this kind of subsoil is from fifteen to twenty dollars. In some places land on which nothing of value could be grown has been transformed into excellent farms by subsoil blasting, and in many other places it has increased crop yields from twenty to fifty per cent.

Dynamite is also used extensively to break up the subsoil in orchards. Here holes are put down four or five feet deep, midway between the trees, and the explosion of half a pound of 25 per cent. or 30 per cent. slow acting dynamite in these holes opens the subsoil so that there can be no root binding. The explosion also destroys grubs and beetles and tends to prevent wet rot and other fungus growth. In some places, where orchards are failing, it is the custom to explode a charge of five or ten pounds of powder about ten feet deep directly under the tree.

When young trees are planted the hole is dug with a quarter pound or half pound of 30 per cent. dynamite. This loosens the surrounding soil so that the tree roots can spread extensively and also grow deep into the subsoil for moisture. In some ground trees planted in blasted holes are almost twice as large when a year old, as those planted in holes dug by hand.

Dynamite is also used on the farm to excavate trenches for tiling or for pipe lines, to dig cellars and foundation trenches, to grade and ditch roads, to sink wells, to clear ice from watering places for stock and to break ice gorges in streams, to dig holes for poles or for fence posts and to split logs for fence rails, cord wood, etc.

PROGRESS OF WORK AT PANAMA

The report of the progress of the work at Panama during December shows that during the month there was completed 1,488,880 cubic yards of dry excavation and about one million cubic yards of excavation in the wet, making with excavation for plant, a total for the month of 2,603,206 cubic yards. As compared with the preceding month, there was an increase of 5,060 cubic yards in the amount of concrete laid, the daily average for the twenty-six working days being 2,085 cubic yards.

"HE loves me, he loves me not," murmured the romantic summer boarder.

"You must have peiked a thousand daisies to pieces to-day," remarked the old farmer.

"Possibly I have."

"Couldn't ye play that game just as well with potato bugs?"

Knight Academy --Notes.--

And now for a good walk from Broadway to the Academy building.

The Mandolin Orchestra may give a concert in Magrath within the next few days, for the purpose of getting means to meet the publication of the commencement edition of the Northern Lights.

Of late the number of students has increased, in that the boys, having put in the crops, are returning to pass the finals. The list of prospective graduates from the preparatory class is getting larger each day.

Elder Thompson, laboring in Helena but whose home is in St. Anthony, Idaho, visited the Academy on Tuesday. He spoke to the students for a short time.

And now all together for the commencement issue of the Northern Lights. A long pull, and a strong pull, etc.

Mrs. Nalder sang a beautiful solo at chapel last week, and Mrs. Baker, our talented pianist, rendered an inspiring number.

Bishop Anderson visited chapel last week, when he made a short talk to the boys and girls The Bishop has been a frequent visitor this winter, for which visits we are deeply grateful. We wish more parents would come.

The Northern Lights made their third appearance this week.

Two weeks more of school. And then, how many sad, sad good byes. We hope we shall nearly all meet again next September. May this be so!

It may not be midnight oil which is being burned in the chemical laboratory, but, like midnight oil, it leaves its bad traces behind it—judging from the offensive order in the hallway every afternoon.

But the Academy did not blow away last Saturday.

Don't forget commencement week, beginning Monday evening, May 22. All we have, gold and silver excepted, is yours free of cost. Come. let us entertain you. It will be our pleasure.

Guy Nilson, missionary student left last week for a mission. Guy's home, it will be remembered, is at Cardston.

What do you think of the closing week's program,as it appears elsewhere in this impression of the Rustler? Come and enjoy it, please, and in so doing you will please and encourage us.

This summer we need the building of a few neat cottages for the students use during the school year. We hope a large number of students will adopt the 'house-keeping'' style of living, as the best results, generally speaking, came from such.

* * *

"The Climax," manuscript by the celebrated dramatist Edward Locke and music by Joseph Cecil Breil, is a play that is difficulty to describe—you might call it the play that is different and you'd be about right. It is a play out of the ordinary, and proves there is something new under the sun. As one reviewer says, "It is a human play, a play full of love, song, poetry and affections. You weep, you smile, you laugh, but never take your eyes off the stage."

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CHURCH SERVICES

Church of Jesus Christ of Latter Day Saints
Sunday Services:
Sunday School at 10 a.m.
Afternoon Service at 2 p.m.
Evening Service at 7 p.m
All are welcome
JOHN F. ANDERSON, Bishop

Presbyterian Church
Sunday Services:
Raymond 7:30 p.m.
Sunday School 3 p.m.
All are welcome to these services.
Wm. Shearer, Pastor.

TENDERS.

SEALED TENDERS marked "For Mounted Police Provisions and Light Supplies, Province of Alberta and Saskatchewan, and addressed to the undersigned" will be recieved up to noon on Tuesday May 2nd, 1911.

Printed forms of tender containing full information as to the articles and quantity required, may be had on application at any of the Mounted Police posts in the North west, or at the office of the undersigned.

No tender will be recieved unless made on such printed forms.

The lowest or any tender not neccesarily accepted

Each tender must be accompanied by accepted Canadian bank cheque or draft for an amount equal to five per cent of the total value of the articles tendered for, which will be forfeited if the party declines to enter into a contract when called to do so, or if he fails to complete the service contracted for. If the contract be not accepted the cheque will be returned.

No payment will be made to newspapers inserting this advertisement without authority first having been obtained.

FRED WHITE.
Controller R. N. W. M. Police
Ottawa, April 1, 1191.

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